



**A CMI INSTITUTION**

**CHRIST COLLEGE OF ENGINEERING  
(AUTONOMOUS)**

**DEPARTMENT OF ELECTRONICS &  
COMMUNICATION ENGINEERING**

**B. Tech. CURRICULUM – 2025**

**Date: 15-07-2026**

**Irinjalakuda, Thrissur – 680125**



A CMI INSTITUTION

# CHRIST COLLEGE OF ENGINEERING (AUTONOMOUS)

## DEPARTMENT OF ELECTRONICS & COMMUNICATION CURRICULUM

B. Tech in Electronics and Communication Engineering

2025 REGULATION  
(SEMESTER 3)

Approved by BoS meeting held on: 19/06/2026

Approved by Academic Council meeting held on: 23/06/26

  
BoS Chairperson

  
Director of Academics

  
Principal

**CHAIRPERSON**  
Board of Studies  
B.Tech Electronics &  
Communication Engineering  
Christ College of Engineering  
(Autonomous)  
Irinjalakuda, Kerala

(College seal)



## B. Tech. Electronics & Communication 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)<br>(Environmental Science, Induction program, Indian Constitution, Essence of Indian Knowledge Tradition) |           |           |           |           |           |           |           |           |            | 0     | 0     |             |
| <b>Total</b>                                                                                                                    | <b>20</b> | <b>25</b> | <b>24</b> | <b>23</b> | <b>23</b> | <b>27</b> | <b>15</b> | <b>10</b> | <b>167</b> |       |       | 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         |
|         | <b>Total</b>                                                          | <b>7</b>          | <b>9</b> | <b>10</b> | <b>11</b> | <b>10</b> | <b>10</b> | <b>5</b> | <b>3</b> | <b>65</b> |

## **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:**

**L25SST403**

L – Electronics and Communication Engineering

25 - Curriculum Revision 2025

SS – Signals & Systems

T - Theory Based Course

4 - Offered in Semester IV

03 – 3<sup>rd</sup> Course in that semester

| FIRST SEMESTER: Electronics & Communication Engineering         |                |             |             |                 |                                                                                      |        |   |   |   |      |       |     |                      |           |
|-----------------------------------------------------------------|----------------|-------------|-------------|-----------------|--------------------------------------------------------------------------------------|--------|---|---|---|------|-------|-----|----------------------|-----------|
| 10 Days Compulsory Induction Program and Universal Human Values |                |             |             |                 |                                                                                      |        |   |   |   |      |       |     |                      |           |
| Sl. No:                                                         | Slot           | Course Code | Course Type | Course Category | Course Title<br>(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<br>S1/<br>S2 | G25PYE122   | BS          | GC              | Physics for Physical Science                                                         | 3      | 0 | 2 | 0 | 5.5  | 40    | 60  | 4                    | 5         |
|                                                                 |                | G25CYE123   |             |                 | Chemistry for Physical Science                                                       |        |   |   |   |      |       |     |                      |           |
| 3                                                               | C              | G25EGE104   | ES          | GC              | Engineering Mechanics                                                                | 3      | 0 | 0 | 0 | 4.5  | 40    | 60  | 3                    | 3         |
| 4                                                               | D              | G25EET205   | ES          | GC              | Basics of Electrical and Electronics Engineering<br>(Part 1: Electrical Engineering) | 2      | 0 | 0 | 0 | 3    | 20    | 30  | 2+2<br>= 4           | 4         |
|                                                                 |                |             |             |                 | (Part 2: Electronics Engineering)                                                    |        |   |   |   |      | 2     | 0   |                      |           |
| 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              | Engineering Workshop                                                                 | 0      | 0 | 2 | 0 | 1    | 50    | 50  | 1                    | 2         |
| 7                                                               | I<br>S1/<br>S2 | A25HWE108   | HM          | CC              | Health and Wellness                                                                  | 1      | 0 | 1 | 0 | 0    | 50    | 0   | 1<br>(Pass/<br>Fail) | 2/3       |
|                                                                 |                | A25LSE109   |             |                 | Life Skills and Professional Communication                                           | 2      | 0 | 1 | 0 | 3.5  | 100   | 0   |                      |           |
| MANDATORY COURSES                                               |                |             |             |                 |                                                                                      |        |   |   |   |      |       |     |                      |           |
| 8                                                               | -              | A25APP110   | MC          | MC              | Activity Point Programme <sup>s</sup>                                                |        |   |   |   |      |       |     | 0                    | -         |
| Total                                                           |                |             |             |                 |                                                                                      |        |   |   |   | 27.5 |       |     | 20                   | 24/<br>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

<sup>s</sup> **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 6<sup>th</sup> 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: Electronics & Communication Engineering |                 |             |             |                 |                                                                  |        |   |   |   |      |       |     |                      |           |
|----------------------------------------------------------|-----------------|-------------|-------------|-----------------|------------------------------------------------------------------|--------|---|---|---|------|-------|-----|----------------------|-----------|
| Sl. No:                                                  | Slot            | Course Code | Course Type | Course Category | Course Title<br>(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<br>S1/<br>S2  | G25PYE122   | BS          | GC              | Physics for Physical Science                                     | 3      | 0 | 2 | 0 | 5.5  | 40    | 60  | 4                    | 5         |
|                                                          |                 | G25CYE123   |             |                 | Chemistry for Physical Science                                   |        |   |   |   |      |       |     |                      |           |
| 3                                                        | C               | G25FCT204   | ES          | GC              | Foundations of Computing: From Hardware Essentials to Web Design | 2      | 0 | 2 | 0 | 4    | 40    | 60  | 3                    | 4         |
| 4                                                        | D               | G25PCT205   | ES          | GC              | Programming in C                                                 | 2      | 0 | 0 | 0 | 3    | 20    | 30  | 2+2=<br>4            | 4         |
|                                                          |                 |             |             |                 |                                                                  | 2      | 0 | 0 | 0 | 3    | 20    | 30  |                      |           |
| 5                                                        | E               | L25NTT206   | PC          | PC              | Network Theory                                                   | 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*<br>S1/<br>S2 | A25HWE108   | HM          | CC              | Health and wellness                                              | 1      | 0 | 1 | 0 | 0    | 50    | 0   | 1<br>(Pass<br>/Fail) | 2/3       |
|                                                          |                 | A25LSE109   |             |                 | Life Skills and Professional Communication                       | 2      | 0 | 1 | 0 | 3.5  | 100   | 0   |                      |           |
| 8                                                        | L               | G25EWP210   | ES          | CC              | Basic Electrical and Electronics Engineering 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: Electronics & Communication Engineering |      |             |             |                 |                                                                   |        |   |   |   |        |       |     |         |           |  |
|---------------------------------------------------------|------|-------------|-------------|-----------------|-------------------------------------------------------------------|--------|---|---|---|--------|-------|-----|---------|-----------|--|
| Sl. No:                                                 | Slot | Course Code | Course Type | Course Category | Course Title<br>(Course Name)                                     | Credit |   |   |   | SS     | Total |     | Credits | Hrs./Week |  |
|                                                         |      |             |             |                 |                                                                   | L      | T | P | R |        | CIE   | ESE |         |           |  |
| THEORY                                                  |      |             |             |                 |                                                                   |        |   |   |   |        |       |     |         |           |  |
| 1                                                       | A    | G25CDT321   | BS          | GC              | Complex analysis, Partial differential equations and Transforms   | 2      | 1 | 0 | 0 | 3.5    | 40    | 60  | 3       | 3         |  |
| 2                                                       | B    | L25MCR302   | PC-PBL      | PC              | Microelectronic Circuits                                          | 2      | 1 | 0 | 1 | 4.5    | 60    | 40  | 4       | 4         |  |
| 3                                                       | C    | L25SST303   | PC          | PC              | Solid State Devices                                               | 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    | A25AET306   | HM          | CC              | Strategic Communication and Documentation in Engineering Practice | 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    | L25ACP308   | PC          | PC              | Analog Circuits Laboratory                                        | 0      | 0 | 3 | 0 | 1.5    | 50    | 50  | 2       | 3         |  |
| 9                                                       | I    | A25EDR349   | SE          | CC              | Engineering Design and Innovation Studio (EDIS-I)                 | 0      | 0 | 0 | 2 | 2      | 50    | -   | 1       | 2         |  |
| 10                                                      | J    | L25EDP310   | PC          | PC              | Electronic Product Design Laboratory                              | 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                                                   |      |             |             |                 |                                                                   |        |   |   |   | 28/33* |       |     | 24/28*  | 27/31*    |  |

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

| FOURTH SEMESTER: Electronics & Communication Engineering |      |             |             |                 |                                                               |                  |   |   |   |                |             |     |             |            |
|----------------------------------------------------------|------|-------------|-------------|-----------------|---------------------------------------------------------------|------------------|---|---|---|----------------|-------------|-----|-------------|------------|
| Sl. No:                                                  | Slot | Course Code | Course Type | Course Category | Course Title<br>(Course Name)                                 | Credit Structure |   |   |   | SS             | Total Marks |     | Credits     | Hrs./Week  |
|                                                          |      |             |             |                 |                                                               | L                | T | P | R |                | CIE         | ESE |             |            |
| THEORY                                                   |      |             |             |                 |                                                               |                  |   |   |   |                |             |     |             |            |
| 1                                                        | A    | G25MAT401   | BS          | GC              | Probability Distribution, Statistics and Stochastic Processes | 2                | 1 | 0 | 0 | 3.5            | 40          | 60  | 3           | 3          |
| 2                                                        | B    | L25LCT402   | PC          | PC              | Linear Integrated Circuits                                    | 2                | 1 | 0 | 0 | 3.5            | 40          | 60  | 3           | 3          |
| 3                                                        | C    | L25SST403   | PC          | PC              | Signals & Systems                                             | 3                | 1 | 0 | 0 | 5              | 40          | 60  | 4           | 4          |
| 4                                                        | D    | L25DDR404   | PC-PBL      | PC              | Digital Design                                                | 2                | 1 | 0 | 1 | 4.5            | 60          | 40  | 4           | 4          |
| 5                                                        | E    | L25PE14XX   | PE          | PE              | Professional Elective - 1                                     | 3                | 0 | 0 | 0 | 4.5            | 40          | 60  | 3           | 3          |
| 6                                                        | F    | G25CIT414   | MC          | CC              | Indian Constitution                                           | 1                | 0 | 0 | 0 | 1.5            | 50          | -   | 1           | 1          |
| PRACTICALS                                               |      |             |             |                 |                                                               |                  |   |   |   |                |             |     |             |            |
| 7                                                        | G    | L25DEP408   | PC          | PC              | Digital Electronics Laboratory                                | 0                | 0 | 3 | 0 | 1.5            | 50          | 50  | 2           | 3          |
| 8                                                        | H    | L25LCP409   | PC          | PC              | Linear Integrated Circuits Laboratory                         | 0                | 0 | 3 | 0 | 1.5            | 50          | 50  | 2           | 3          |
| 9                                                        | I    | A25EDR449   | 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    | A25UHE311   | MC          | CC              | Universal Human Values and Professional Ethics                | 1                | 0 | 1 | 0 | 2              | 60          | 40  | Pass/Fail   | 1          |
| ACTIVITY POINT PROGRAMME                                 |      |             |             |                 |                                                               |                  |   |   |   |                |             |     |             |            |
| 12                                                       | -    | A25APP412   | 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/<br>35.5* |             |     | 23/<br>27*  | 28/<br>32* |

| FIFTH SEMESTER: Electronics & Communication Engineering |           |                                                                                |             |                 |                                                     |        |   |   |   |            |       |     |               |            |
|---------------------------------------------------------|-----------|--------------------------------------------------------------------------------|-------------|-----------------|-----------------------------------------------------|--------|---|---|---|------------|-------|-----|---------------|------------|
| Sl. No:                                                 | Slot      | Course Code                                                                    | Course Type | Course Category | Course Title<br>(Course Name)                       | Credit |   |   |   | SS         | Total |     | Credits       | Hrs./Week  |
|                                                         |           |                                                                                |             |                 |                                                     | L      | T | P | R |            | CIE   | ESE |               |            |
| THEORY                                                  |           |                                                                                |             |                 |                                                     |        |   |   |   |            |       |     |               |            |
| 1                                                       | A         | L25EFT501                                                                      | PC          | PC              | Engineering Electromagnetics                        | 3      | 0 | 0 | 0 | 4.5        | 40    | 60  | 3             | 3          |
| 2                                                       | B         | L25MER502                                                                      | PC-PBL      | PC              | Microcontrollers & Embedded Systems                 | 2      | 1 | 0 | 1 | 4.5        | 60    | 40  | 4             | 4          |
| 3                                                       | C         | L25EDT503                                                                      | PC          | PC              | Analog& Digital Communication                       | 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         | M25PE25XX                                                                      | 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         | L25MCP506                                                                      | PC          | PC              | Microcontroller Lab                                 | 0      | 0 | 3 | 0 | 1.5        | 50    | 50  | 2             | 3          |
| 8                                                       | H         | L25CLP507                                                                      | PC          | PC              | Communication Lab                                   | 0      | 0 | 3 | 0 | 1.5        | 50    | 50  | 2             | 3          |
| 9                                                       | I         | A25EDR549                                                                      | SE          | CC              | Engineering Design and Innovation Studio (EDIS-III) | 0      | 0 | 0 | 2 | 2          | 50    | -   | 1             | 2          |
| MANDATORY NON-CREDIT COURSES                            |           |                                                                                |             |                 |                                                     |        |   |   |   |            |       |     |               |            |
| 10                                                      | J         | A25QRT510                                                                      | MC          | CC              | Quantitative and Reasoning Skills                   | 1      | 0 | 0 | 0 | 1.5        | 50    | -   | Pass/<br>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/<br>S6 | Industrial Visit (Maximum 12 Days are permitted, not exceeding 6 working days) |             |                 |                                                     |        |   |   |   |            |       |     |               |            |
| Total                                                   |           |                                                                                |             |                 |                                                     |        |   |   |   | 31/<br>36* |       |     | 23/<br>27*    | 27/<br>31* |

# Students can undertake the summer internship during the vacation after the 4<sup>th</sup> and 6<sup>th</sup> 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 5<sup>th</sup> and 7<sup>th</sup> semesters. Students can also opt for prescribed MOOC Courses instead of summer internship.

| SIXTH SEMESTER: Electronics & Communication Engineering |      |                                                                                |             |                 |                                                    |        |   |   |   |                |       |     |            |            |
|---------------------------------------------------------|------|--------------------------------------------------------------------------------|-------------|-----------------|----------------------------------------------------|--------|---|---|---|----------------|-------|-----|------------|------------|
| Sl. No:                                                 | Slot | Course Code                                                                    | Course Type | Course Category | Course Title<br>(Course Name)                      | Credit |   |   |   | SS             | Total |     | Credits    | Hrs./Week  |
|                                                         |      |                                                                                |             |                 |                                                    | L      | T | P | R |                | CIE   | ESE |            |            |
| THEORY                                                  |      |                                                                                |             |                 |                                                    |        |   |   |   |                |       |     |            |            |
| 1                                                       | A    | L25VDT601                                                                      | PC          | PC              | VLSI Design                                        | 3      | 1 | 0 | 0 | 5              | 40    | 60  | 4          | 4          |
| 2                                                       | B    | L25MAT602                                                                      | PC          | PC              | Microwave & Antennas                               | 2      | 1 | 0 | 0 | 3.5            | 40    | 60  | 3          | 3          |
| 3                                                       | C    | L25CST603                                                                      | PC          | PC              | Control Systems                                    | 2      | 1 | 0 | 0 | 3.5            | 40    | 60  | 3          | 3          |
| 4                                                       | D    | L25DSR604                                                                      | PC-PBL      | PC              | Digital Signal Processing                          | 2      | 1 | 0 | 1 | 4.5            | 60    | 40  | 4          | 4          |
| 5                                                       | E    | L25PE36XX                                                                      | PE          | PE              | Professional Elective – III*                       | 3      | 0 | 0 | 0 | 4.5            | 40    | 60  | 3          | 3          |
| 6                                                       | F    | L25OE16XX                                                                      | OE          | OE              | Open Elective – I <sup>#</sup>                     | 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    | L25MEP607                                                                      | PC          | PC              | Microwave Engineering Lab                          | 0      | 0 | 3 | 0 | 1.5            | 50    | 50  | 2          | 3          |
| 9                                                       | I    | A25EDR649                                                                      | SE          | CC              | Engineering Design and Innovation Studio (EDIS-IV) | 0      | 0 | 0 | 2 | 2              | 50    | -   | 1          | 2          |
| 10                                                      | J    | L25DSP608                                                                      | PC          | PC              | Digital Signal Processing 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    | -                                                                              | 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/<br>37.5* |       |     | 27/<br>31* | 30/<br>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: Electronics & Communication Engineering |      |             |             |                 |                                                                                                             |        |   |   |    |              |       |     |            |            |
|-----------------------------------------------------------|------|-------------|-------------|-----------------|-------------------------------------------------------------------------------------------------------------|--------|---|---|----|--------------|-------|-----|------------|------------|
| Sl. No:                                                   | Slot | Course Code | Course Type | Course Category | Course Title<br>(Course Name)                                                                               | Credit |   |   |    | SS           | Total |     | Credits    | Hrs./Week  |
|                                                           |      |             |             |                 |                                                                                                             | L      | T | P | R  |              | CIE   | ESE |            |            |
| THEORY                                                    |      |             |             |                 |                                                                                                             |        |   |   |    |              |       |     |            |            |
| 1                                                         | A    | L25PE47XX   | PE          | PE              | Professional Elective - IV<br>(Internship Students: Self Study/MOOC Approved by the College/Online Classes) | 3      | 0 | 0 | 0  | 4.5          | 40    | 60  | 3          | 3          |
| 2                                                         | B    | L25PE57XX   | PE          | PE              | Professional Elective - V<br>(Internship Students: Self Study/MOOC Approved by the College/Online Classes)  | 3      | 0 | 0 | 0  | 4.5          | 40    | 60  | 3          | 3          |
| 3                                                         | C    | L25OE27XX   | OE          | OE              | Open Elective – II<br>(Internship Students: Self Study/MOOC Approved by the College/Online Classes)         | 3      | 0 | 0 | 0  | 4.5          | 40    | 60  | 3          | 3          |
| 4                                                         | D    | L25SMP704   | SR          | SR              | Seminar (Symposium)                                                                                         | 0      | 0 | 3 | 0  | 1.5          | 40    | 60  | 2          | 3          |
| PRACTICALS                                                |      |             |             |                 |                                                                                                             |        |   |   |    |              |       |     |            |            |
| 5                                                         | I    | L25CPR705   | PR/IP       | PR/IP           | Option 1: Capstone Project                                                                                  | 0      | 0 | 0 | 12 | 12           | 100   | 0   | 4          | 10         |
| 6                                                         |      | L25INR705   | PR/IP       | PR/IP           | Option 2: Industry Internship <sup>#</sup>                                                                  |        |   |   |    | -            | 100   | 0   |            |            |
| VALUE ADDED COURSES                                       |      |             |             |                 |                                                                                                             |        |   |   |    |              |       |     |            |            |
| 8                                                         | H    | -           | VA          | CC              | Honours Course                                                                                              | 3      | 0 | 0 | 0  | 4.5          |       |     | 4          | 4          |
| Total                                                     |      |             |             |                 |                                                                                                             |        |   |   |    | 27/<br>31.5* |       |     | 15/<br>19* | 22/<br>26* |

\* The students can take the internship option either in 7<sup>th</sup> or in 8<sup>th</sup> 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 (7<sup>th</sup> or 8<sup>th</sup> semester)

| EIGHTH SEMESTER: Electronics & Communication Engineering |      |                                                |             |                 |                                                                                                      |        |   |   |     |         |       |     |         |           |
|----------------------------------------------------------|------|------------------------------------------------|-------------|-----------------|------------------------------------------------------------------------------------------------------|--------|---|---|-----|---------|-------|-----|---------|-----------|
| Sl. No:                                                  | Slot | Course Code                                    | Course Type | Course Category | Course Title<br>(Course Name)                                                                        | Credit |   |   |     | SS      | Total |     | Credits | Hrs./Week |
|                                                          |      |                                                |             |                 |                                                                                                      | L      | T | P | R   |         | CIE   | ESE |         |           |
| THEORY                                                   |      |                                                |             |                 |                                                                                                      |        |   |   |     |         |       |     |         |           |
| 1                                                        | A    | L25PE68XX                                      | PE          | PE              | Professional Elective - VI<br>(Internship Students: Self Study/MOOC Approved by the College/Online   | 3      | 0 | 0 | 0   | 4.5     | 40    | 60  | 3       | 3         |
| 2                                                        | B    | L25OE38XX                                      | OE          | OE              | Open Elective - III<br>(Internship Students: Self Study/MOOC Approved by the College/Online Classes) | 3      | 0 | 0 | 0   | 4.5     | 40    | 60  | 3       | 3         |
| PRACTICALS                                               |      |                                                |             |                 |                                                                                                      |        |   |   |     |         |       |     |         |           |
| 3                                                        | I    | L25CPR803                                      | 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*   |

\*Option 2: Full semester Internship in Industry/Organization

## **Professional Electives**

### **1. VLSI Stream**

1. Introduction to MEMS - Level 3
2. Nano Electronic Devices - Level 3
3. Digital System Design - Level 3
4. High speed Digital Design - Level 3/Level 5
5. Analog & Mixed signal VLSI Design - Level 3/Level 5
6. Testing of VLSI Circuits - Level 3/Level 5

### **2. Communication Stream**

1. Computer Communications & Networks - Level 3
2. Modern Communication Technologies - Level 3
3. Satellite Communication - Level 3/Level 5
4. Secure Communication - Level 3/Level 5
5. Fiber Optic Communication - Level 3
6. Advanced Communication Theory - Level 3/Level 5

**3. Signal Processing Stream**

1. Biomedical signal processing - Level 3
2. Computer Vision - Level 3/Level 5
3. Machine learning & Deep Learning - Level 3/Level 5
4. Advanced Digital signal Processing - Level 3/Level 5
5. Audio & Speech Processing - Level 3
6. Digital Image Processing - Level 3

**4. Electronic system Design Stream**

1. Sensors & Actuators - Level 3
2. Measurements & Instrumentation - Level 3
3. Biomedical Instrumentation - Level 3
4. Real Time Operating Systems - Level 3/Level 5
5. ARM Architecture and Programming - Level 3/Level 5
6. Internet of Things and Smart Systems - Level 3/Level 5

**5. General Stream**

1. Introduction to Photonics & Integrated Optoelectronic System - Level 3/ Level 5
2. Cyber-Physical Systems
3. Robotics and AI-Driven Autonomous Systems - Level 3/ Level 5
4. Information Theory and Coding
5. Cellular Communication
6. Introduction to Quantum Computing - Level 3/ Level 5

**6. Language Electives**

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

**Open Electives****Open Elective 1 — Computing and Programmable Systems**

1. Microcontroller Architecture and Embedded Programming
2. Robotics and Autonomous Systems
3. Computer Organisation and Architecture

**Open Elective 2 — Connected and Intelligent Systems**

1. Internet of Things: Protocols, Platforms, and Applications
2. Embedded Systems Design and Real-Time Programming
3. MEMS, Microsystems, and Smart Sensors

**Open Elective 3 — Emerging Device Technologies**

1. Automotive Electronics and Vehicle Communication Systems
2. Pattern Recognition and Machine Intelligence
3. Nanoelectronics and Nanoscale Device Engineering

**Open Elective 4 — Sustainable and Green Technologies**

1. Sustainable Energy Systems and Renewable Technology Integration
2. Green Electronics: Low-Power Design and Eco-Friendly Manufacturing
3. Sustainable Electronic and Communication Systems Design

**Open Elective 5 – Indian Knowledge System**

1. Vedic Mathematics for Engineering Computation
2. Indigenous Technologies and Atmanirbhar Electronics
3. Indian Contributions to Electronics and Communication Engineering

**LIST OF MINOR COURSES****Third Semester: -**

Basket 1: Microelectronics-Devices to circuits

Basket 2: Electronic system design-Hands on circuits and PCB design with CAD software

Basket 3: Analog Communication

**Fourth Semester: -**

Basket 1: Microprocessors and Microcontrollers

Basket 2: Introduction to Embedded System Design

Basket 3: Signals and Systems

**LIST OF HONOURS COURSES****Fourth Semester: -**

Basket 1: Digital IC Design

Basket 2: Embedded Systems Design

Basket 3: FPGA Based Signal Processing Systems