

**Curriculum for Undergraduate Degree  
B.Tech in Computer Science and Engineering  
(w.e.f. AY: 2025-26)**

**Part II: Course Structure & Semester wise Credit Distribution**

**First Semester (First Year)**

**Mandatory Induction Program- 3 Weeks Duration**

| Sl No.                                   | Category | Course Code | Course Name                                                        | Contact Hours |   |    | Credits |
|------------------------------------------|----------|-------------|--------------------------------------------------------------------|---------------|---|----|---------|
|                                          |          |             |                                                                    | L             | T | P  |         |
| Theory                                   |          |             |                                                                    |               |   |    |         |
| 1                                        | BS       | BS-M101     | Mathematics-I                                                      | 3             | 1 | 0  | 4       |
| 2                                        | BS       | BS-PH101    | Physics                                                            | 3             | 1 | 0  | 4       |
| 3                                        | ES       | ES-CS101    | Programming for Problem Solving                                    | 3             | 0 | 0  | 3       |
| 4                                        | HM       | HM-HU103    | Inculcation of Human Values and Professional Ethics (Mulya Pravah) | 2             | 0 | 0  | 2       |
| Total Theory                             |          |             |                                                                    | 11            | 2 | 0  | 13      |
| Practical/ Sessional/ Audit Course       |          |             |                                                                    |               |   |    |         |
| 1                                        | BS       | BS-PH191    | Physics Laboratory                                                 | 0             | 0 | 3  | 1.5     |
| 2                                        | ES       | ES-CS191    | Programming for Problem Solving Laboratory                         | 0             | 0 | 4  | 2       |
| 3                                        | ES       | ES-ME191    | Engineering Graphics and Design                                    | 0             | 0 | 4  | 2       |
| 4                                        | AU       | AU171       | NSS/NCC                                                            | 2             | 0 | 0  | 0       |
| Total Practical/ Sessional/ Audit Course |          |             |                                                                    | 2             | 0 | 11 | 5.5     |
| Total of First Semester                  |          |             |                                                                    | 13            | 2 | 11 | 18.5    |

**Second Semester (First Year)**

| Sl No.                             | Category | Course Code | Course Name                                                         | Contact Hours |   |   | Credits |
|------------------------------------|----------|-------------|---------------------------------------------------------------------|---------------|---|---|---------|
|                                    |          |             |                                                                     | L             | T | P |         |
| Theory                             |          |             |                                                                     |               |   |   |         |
| 1                                  | BS       | BS-M201     | Mathematics-II                                                      | 3             | 1 | 0 | 4       |
| 2                                  | BS       | BS-CH201    | Chemistry                                                           | 3             | 0 | 0 | 3       |
| 3                                  | ES       | ES-EE201    | Basic Electrical and Electronics Engineering                        | 2             | 1 | 0 | 3       |
| 4                                  | HM       | HM-HU201    | Communication Skill (Jeevan Kaushal-I)                              | 2             | 0 | 0 | 2       |
| 5                                  | HM       | HM-HU202    | Introduction to Indian Knowledge System (Indian Knowledge System-I) | 2             | 0 | 0 | 2       |
| Total Theory                       |          |             |                                                                     | 12            | 2 | 0 | 14      |
| Practical/ Sessional/ Audit Course |          |             |                                                                     |               |   |   |         |
| 1                                  | BS       | BS-CH291    | Chemistry Laboratory                                                | 0             | 0 | 3 | 1.5     |
| 2                                  | ES       | ES-EE291    | Basic Electrical and                                                | 0             | 0 | 4 | 2       |

*Curriculum Structure for Undergraduate Degree (B.Tech.) in Computer Science and Engineering (w.e.f. AY: 2025-26)*

|                                                 |    |          |                                    |           |          |           |             |
|-------------------------------------------------|----|----------|------------------------------------|-----------|----------|-----------|-------------|
|                                                 |    |          | Electronics Engineering Laboratory |           |          |           |             |
| 3                                               | ES | ES-ME292 | Workshop/Manufacturing Practices   | 0         | 0        | 4         | 2           |
| 4                                               | HM | HM-HU291 | Communication Skill Laboratory     | 0         | 0        | 2         | 1           |
| 5                                               | PW | PW-BS281 | Ideation Laboratory                | 0         | 0        | 2         | 1           |
| <i>Total Practical/ Sessional/ Audit Course</i> |    |          |                                    | <b>0</b>  | <b>0</b> | <b>15</b> | <b>7.5</b>  |
| <b>Total of Second Semester</b>                 |    |          |                                    | <b>12</b> | <b>2</b> | <b>15</b> | <b>21.5</b> |

| Third Semester (Second Year)             |          |             |                                               |               |   |    |         |
|------------------------------------------|----------|-------------|-----------------------------------------------|---------------|---|----|---------|
| Sl. No.                                  | Category | Course Code | Course Name                                   | Contact Hours |   |    | Credits |
|                                          |          |             |                                               | L             | T | P  |         |
| Theory                                   |          |             |                                               |               |   |    |         |
| 1                                        | BS       | BS-M301     | Mathematics -III                              | 3             | 0 | 0  | 3       |
| 2                                        | BS       | BS-M303     | Vedic Math (Indian Knowledge System-II)       | 2             | 0 | 0  | 2       |
| 3                                        | ES       | ES-EC301    | Digital Electronics                           | 3             | 0 | 0  | 3       |
| 4                                        | PC       | PC-CS301    | Data Structures and Algorithms                | 3             | 1 | 0  | 4       |
| 5                                        | HM       | HM-HU301    | Universal Human Values-II (Jeevan Kaushal-IV) | 2             | 0 | 0  | 2       |
| Total Theory                             |          |             |                                               | 13            | 1 | 0  | 14      |
| Practical/ Sessional/ Audit Course       |          |             |                                               |               |   |    |         |
| 1                                        | ES       | ES-EC391    | Digital Electronics Laboratory                | 0             | 0 | 4  | 2       |
| 2                                        | PC       | PC-CS391    | Data Structures Laboratory                    | 0             | 0 | 4  | 2       |
| 3                                        | PC       | PC-CS392    | Python for Problem Solving Laboratory         | 0             | 0 | 4  | 2       |
| Total Practical/ Sessional/ Audit Course |          |             |                                               | 0             | 0 | 12 | 6       |
| Total of Third Semester                  |          |             |                                               | 13            | 1 | 12 | 20      |

| Fourth Semester (Second Year) |          |             |                                                          |               |   |   |         |
|-------------------------------|----------|-------------|----------------------------------------------------------|---------------|---|---|---------|
| Sl. No.                       | Category | Course Code | Course Name                                              | Contact Hours |   |   | Credits |
|                               |          |             |                                                          | L             | T | P |         |
| Theory                        |          |             |                                                          |               |   |   |         |
| 1                             | BS       | BS-M403     | Basics of Indian Astronomy (Indian Knowledge System-III) | 2             | 0 | 0 | 2       |
| 2                             | ES       | ES-EC401    | Signals and Systems                                      | 3             | 0 | 0 | 3       |
| 3                             | PC       | PC-CS401    | Discrete Mathematics                                     | 3             | 0 | 0 | 3       |
| 4                             | PC       | PC-CS402    | Computer Organization and Architecture                   | 3             | 0 | 0 | 3       |
| 5                             | PC       | PC-CS403    | Design and Analysis of Algorithms                        | 3             | 0 | 0 | 3       |
| 6                             | PC       | PC-CS404    | Operating Systems                                        | 3             | 0 | 0 | 3       |
| Total Theory                  |          |             |                                                          | 17            | 0 | 0 | 17      |

| Practical/ Sessional/ Audit Course              |    |          |                                                   |           |          |           |           |
|-------------------------------------------------|----|----------|---------------------------------------------------|-----------|----------|-----------|-----------|
| 1                                               | PC | PC-CS492 | Computer Organization and Architecture Laboratory | 0         | 0        | 3         | 1.5       |
| 2                                               | PC | PC-CS493 | Algorithms Laboratory                             | 0         | 0        | 4         | 2         |
| 3                                               | PC | PC-CS494 | Operating Systems Laboratory                      | 0         | 0        | 3         | 1.5       |
| 3                                               | PW | PW-CS481 | Mini Project                                      | 0         | 0        | 4         | 2         |
| <i>Total Practical/ Sessional/ Audit Course</i> |    |          |                                                   | <b>0</b>  | <b>0</b> | <b>14</b> | <b>7</b>  |
| <b>Total of Fourth Semester</b>                 |    |          |                                                   | <b>17</b> | <b>0</b> | <b>14</b> | <b>24</b> |

| Fifth Semester (Third Year)              |          |             |                                                               |               |   |    |         |
|------------------------------------------|----------|-------------|---------------------------------------------------------------|---------------|---|----|---------|
| Sl. No.                                  | Category | Course Code | Course Name                                                   | Contact Hours |   |    | Credits |
|                                          |          |             |                                                               | L             | T | P  |         |
| Theory                                   |          |             |                                                               |               |   |    |         |
| 1                                        | BS       | BS-M503     | Introduction to Indian Astronomy (Indian Knowledge System-IV) | 2             | 0 | 0  | 2       |
| 2                                        | PC       | PC-CS501    | Object-oriented Programming                                   | 3             | 0 | 0  | 3       |
| 3                                        | PC       | PC-CS502    | Formal Language and Automata Theory                           | 3             | 0 | 0  | 3       |
| 4                                        | PC       | PC-CS503    | Machine Learning                                              | 3             | 0 | 0  | 3       |
| 5                                        | PC       | PC-CS504    | Software Engineering                                          | 3             | 0 | 0  | 3       |
| 6                                        | HM       | HM-HU503    | Leadership and Management Skills (JeevanKaushal-III)          | 2             | 0 | 0  | 2       |
| Total Theory                             |          |             |                                                               | 16            | 0 | 0  | 16      |
| Practical/ Sessional/ Audit Course       |          |             |                                                               |               |   |    |         |
| 1                                        | PC       | PC-CS591    | Object-oriented Programming Laboratory                        | 0             | 0 | 3  | 1.5     |
| 2                                        | PC       | PC-CS593    | Machine Learning Laboratory                                   | 0             | 0 | 3  | 1.5     |
| 3                                        | PC       | PC-CS595    | Cloud Management Laboratory                                   | 0             | 0 | 4  | 2       |
| 4                                        | HM       | HM-HU571    | Aptitude Skill Development - I                                | 1             | 0 | 0  | 1       |
| Total Practical/ Sessional/ Audit Course |          |             |                                                               | 1             | 0 | 10 | 6       |
| Total of Fifth Semester                  |          |             |                                                               | 17            | 0 | 10 | 22      |

| Sixth Semester (Third Year) |          |             |                                |               |   |   |         |
|-----------------------------|----------|-------------|--------------------------------|---------------|---|---|---------|
| Sl. No.                     | Category | Course Code | Course Name                    | Contact Hours |   |   | Credits |
|                             |          |             |                                | L             | T | P |         |
| Theory                      |          |             |                                |               |   |   |         |
| 1                           | PC       | PC-CS601    | Database Management System     | 3             | 0 | 0 | 3       |
| 2                           | PC       | PC-CS602    | Computer Networks              | 3             | 0 | 0 | 3       |
| 3                           | PC       | PC-CS603    | Compiler Design                | 3             | 0 | 0 | 3       |
| 4                           | PC       | PC-CS604    | Introduction to Cyber Security | 3             | 0 | 0 | 3       |
| 5                           | HM       | HM-HU603    | Professional Skill (Jeevan     | 1             | 0 | 0 | 1       |

|                                                 |    |          |                                                  |           |          |           |           |
|-------------------------------------------------|----|----------|--------------------------------------------------|-----------|----------|-----------|-----------|
|                                                 |    |          | Kaushal-II)                                      |           |          |           |           |
| <i>Total Theory</i>                             |    |          |                                                  | <b>13</b> | <b>0</b> | <b>0</b>  | <b>13</b> |
| <b>Practical/ Sessional/ Audit Course</b>       |    |          |                                                  |           |          |           |           |
| 1                                               | PC | PC-CS691 | Database Management System Laboratory            | 0         | 0        | 4         | 2         |
| 2                                               | PC | PC-CS692 | Computer Networks Laboratory                     | 0         | 0        | 4         | 2         |
| 3                                               | HM | HM-HU693 | Professional Skill (JeevanKaushal-II) Laboratory | 0         | 0        | 2         | 1         |
| 4                                               | PW | PW-CS681 | Project-I                                        | 0         | 0        | 4         | 2         |
| 5                                               | HM | HM-HU671 | Aptitude Skill Development - II                  | 1         | 0        | 0         | 1         |
| 6                                               | AU | AU671    | Environmental Science                            | 2         | 0        | 0         | 0         |
| <i>Total Practical/ Sessional/ Audit Course</i> |    |          |                                                  | <b>3</b>  | <b>0</b> | <b>14</b> | <b>8</b>  |
| <b>Total of Sixth Semester</b>                  |    |          |                                                  | <b>16</b> | <b>0</b> | <b>14</b> | <b>21</b> |

| Seventh Semester (Fourth Year)           |              |             |                            |               |   |    |         |
|------------------------------------------|--------------|-------------|----------------------------|---------------|---|----|---------|
| Sl. No.                                  | Category     | Course Code | Course Name                | Contact Hours |   |    | Credits |
|                                          |              |             |                            | L             | T | P  |         |
| Theory                                   |              |             |                            |               |   |    |         |
| 1                                        | BS           | BS-BIO703   | Biology for Engineers      | 2             | 0 | 0  | 2       |
| 2                                        | PE           | PE-CS701    | Professional Elective - I  | 3             | 0 | 0  | 3       |
| 3                                        | PE           | PE-CS702    | Professional Elective - II | 3             | 0 | 0  | 3       |
| 4                                        | OE           | OE-XXXXX    | Open Elective - I          | 3             | 0 | 0  | 3       |
|                                          | Total Theory |             |                            | 11            | 0 | 0  | 11      |
| Practical/ Sessional/ Audit Course       |              |             |                            |               |   |    |         |
| 1                                        | PW           | PW-CS781    | Project-II                 | 0             | 0 | 6  | 3       |
| 2                                        | PW           | PW-CS782    | Summer Internship          | 0             | 0 | 6  | 3       |
| Total Practical/ Sessional/ Audit Course |              |             |                            | 0             | 0 | 12 | 6       |
| Total of Seventh Semester                |              |             |                            | 11            | 0 | 12 | 17      |

| Eighth Semester (Fourth Year)            |          |             |                                |               |   |    |         |
|------------------------------------------|----------|-------------|--------------------------------|---------------|---|----|---------|
| Sl. No.                                  | Category | Course Code | Course Name                    | Contact Hours |   |    | Credits |
|                                          |          |             |                                | L             | T | P  |         |
| Theory                                   |          |             |                                |               |   |    |         |
| 1                                        | PE       | PE-CS801    | Professional Elective - III    | 3             | 0 | 0  | 3       |
| 2                                        | HM       | HM-HU803    | Entrepreneurship and Start-ups | 2             | 0 | 0  | 2       |
| 3                                        | OE       | OE-XXXXX    | Open Elective - II             | 3             | 0 | 0  | 3       |
| 4                                        | OE       | OE-XXXXX    | Open Elective - III            | 3             | 0 | 0  | 3       |
| Total Theory                             |          |             |                                | 11            | 0 | 0  | 11      |
| Practical/ Sessional/ Audit Course       |          |             |                                |               |   |    |         |
| 1                                        | PW       | PW-CS881    | Project-III                    | 0             | 0 | 8  | 4       |
| 2                                        | PW       | PW-CS882    | Comprehensive Viva voce        | 0             | 0 | 2  | 1       |
| Total Practical/ Sessional/ Audit Course |          |             |                                | 0             | 0 | 10 | 5       |
| Total of Eighth Semester                 |          |             |                                | 11            | 0 | 10 | 16      |

Curriculum Structure for Undergraduate Degree (B.Tech.) in Computer Science and Engineering (w.e.f. AY:2025-26)

## Part III: Specializations and corresponding List of Elective Papers

### A. Specialization in Advanced Machine Intelligence

| Sl. No.                                  | Semester | Course Code | Course Name               | Course Title                                                              | Contact Hours |   |   | Credits |
|------------------------------------------|----------|-------------|---------------------------|---------------------------------------------------------------------------|---------------|---|---|---------|
|                                          |          |             |                           |                                                                           | L             | T | P |         |
| Theory                                   |          |             |                           |                                                                           |               |   |   |         |
| 1                                        | VII      | PE-CS701A   | Professional Elective-I   | A. Artificial Intelligence<br>B. Neural Network and Deep Learning         | 3             | 0 | 0 | 3       |
| 2                                        | VII      | PE-CS702A   | Professional Elective-II  | A. Image Processing and Computer Vision<br>B. Natural Language processing | 3             | 0 | 0 | 3       |
| 3                                        | VIII     | PE-CS801A   | Professional Elective-III | A. Generative AI<br>B. Reinforcement Learning                             | 3             | 0 | 0 | 3       |
| Total Theory                             |          |             |                           |                                                                           | 9             | 0 | 0 | 9       |
| Practical/ Sessional/ Audit Course       |          |             |                           |                                                                           |               |   |   |         |
| 1                                        |          |             |                           |                                                                           | 0             | 0 | 0 | 0       |
| Total Practical/ Sessional/ Audit Course |          |             |                           |                                                                           | 0             | 0 | 0 | 0       |
| Total                                    |          |             |                           |                                                                           | 9             | 0 | 0 | 9       |

### B. Specialization in Advanced Computing

| Sl. No.                                  | Semester | Course Code | Course Name               | Course Title                                                               | Contact Hours |   |   | Credits |
|------------------------------------------|----------|-------------|---------------------------|----------------------------------------------------------------------------|---------------|---|---|---------|
|                                          |          |             |                           |                                                                            | L             | T | P |         |
| Theory                                   |          |             |                           |                                                                            |               |   |   |         |
| 1                                        | VII      | PE-CS701B   | Professional Elective-I   | A. High Performance Computing<br>B. Advanced Computer and GPU Architecture | 3             | 0 | 0 | 3       |
| 2                                        | VII      | PE-CS702B   | Professional Elective-II  | A. Cloud Computing<br>B. Edge Computing                                    | 3             | 0 | 0 | 3       |
| 3                                        | VIII     | PE-CS801B   | Professional Elective-III | A. Quantum Computing<br>B. Distributed System                              | 3             | 0 | 0 | 3       |
| Total Theory                             |          |             |                           |                                                                            | 9             | 0 | 0 | 9       |
| Practical/ Sessional/ Audit Course       |          |             |                           |                                                                            |               |   |   |         |
|                                          |          |             |                           |                                                                            |               |   |   |         |
| Total Practical/ Sessional/ Audit Course |          |             |                           |                                                                            | 0             | 0 | 0 | 0       |
| Total                                    |          |             |                           |                                                                            | 9             | 0 | 0 | 9       |

| C. Specialization inIntelligent and Secure Information Systems |          |             |                           |                                                       |               |   |   |         |
|----------------------------------------------------------------|----------|-------------|---------------------------|-------------------------------------------------------|---------------|---|---|---------|
| Sl. No.                                                        | Semester | Course Code | Course Name               | Course Title                                          | Contact Hours |   |   | Credits |
|                                                                |          |             |                           |                                                       | L             | T | P |         |
| Theory                                                         |          |             |                           |                                                       |               |   |   |         |
| 1                                                              | VII      | PE-CS701C   | Professional Elective-I   | A. Soft Computing<br>B. Pattern Recognition           | 3             | 0 | 0 | 3       |
| 2                                                              | VII      | PE-CS702C   | Professional Elective-II  | A. Data Mining<br>B. Big Data Analytics               | 3             | 0 | 0 | 3       |
| 3                                                              | VIII     | PE-CS801C   | Professional Elective-III | A. Blockchain Technologies<br>B. Information Security | 3             | 0 | 0 | 3       |
| Total Theory                                                   |          |             |                           |                                                       | 9             | 0 | 0 | 9       |
| Practical/ Sessional/ Audit Course                             |          |             |                           |                                                       |               |   |   |         |
| 1                                                              |          |             |                           |                                                       | 0             | 0 | 0 | 0       |
| Total Practical/ Sessional/ Audit Course                       |          |             |                           |                                                       | 0             | 0 | 0 | 0       |
| Total                                                          |          |             |                           |                                                       | 9             | 0 | 0 | 9       |

## Part IV: List of Open Elective Papers

### Open Elective Papers offered by CSE department

| Sl. No.                                  | Semester | Course Code | Course Name       | Course Title                                  | Contact Hours |   |    | Credits |
|------------------------------------------|----------|-------------|-------------------|-----------------------------------------------|---------------|---|----|---------|
|                                          |          |             |                   |                                               | L             | T | P  |         |
| Theory                                   |          |             |                   |                                               |               |   |    |         |
| 1                                        | V        | OE-CS501A   | Open Elective-I   | Introduction to Python Programming            | 2             | 0 | 0  | 2       |
| 2                                        | VI       | OE-CS601A   | Open Elective-II  | Data Structures and Algorithms                | 2             | 0 | 0  | 2       |
| 3                                        | VII      | OE-CS701A   | Open Elective-III | Database Management System                    | 2             | 0 | 0  | 2       |
| 4                                        | VII      | OE-CS701B   |                   | Object-oriented Programming                   | 2             | 0 | 0  | 2       |
| 5                                        | VIII     | OE-CS801A   | Open Elective-IV  | Machine Learning                              | 2             | 0 | 0  | 2       |
| Total Theory                             |          |             |                   |                                               | 10            | 0 | 0  | 10      |
| Practical/ Sessional/ Audit Course       |          |             |                   |                                               |               |   |    |         |
| 1                                        | V        | OE-CS591A   | Open Elective-I   | Introduction to Python Programming Laboratory | 0             | 0 | 2  | 1       |
| 2                                        | VI       | OE-CS691A   | Open Elective-II  | Data Structures Laboratory                    | 0             | 0 | 2  | 1       |
| 3                                        | VII      | OE-CS 791A  | Open Elective-III | Database Management System Laboratory         | 0             | 0 | 2  | 1       |
| 4                                        | VII      | OE-CS791B   |                   | Object-oriented Programming Laboratory        | 0             | 0 | 2  | 1       |
| 5                                        | VIII     | OE-CS891A   | Open Elective-IV  | Machine Learning Laboratory                   | 0             | 0 | 2  | 1       |
| Total Practical/ Sessional/ Audit Course |          |             |                   |                                               | 0             | 0 | 10 | 5       |
| Total                                    |          |             |                   |                                               | 10            | 0 | 10 | 15      |

## Part V: Curriculum Structure for Minor Degree

### A. Minor Degree in Advanced Web Development

| Sl. No.                                  | Semester | Course Code | Course Name                                      | Contact Hours |   |    | Credits |
|------------------------------------------|----------|-------------|--------------------------------------------------|---------------|---|----|---------|
|                                          |          |             |                                                  | L             | T | P  |         |
| Theory                                   |          |             |                                                  |               |   |    |         |
| 1                                        | IV       | MN-CS401A   | Fundamentals of Front-end Development            | 4             | 0 | 0  | 4       |
| 2                                        | V        | MN-CS501A   | Server-Side Programming                          | 4             | 0 | 0  | 4       |
| 3                                        | VI       | MN-CS601A   | Advanced Front-end Development                   | 4             | 0 | 0  | 4       |
| 4                                        | VII      | MN-CS701A   | Fundamentals of Deployment                       | 2             | 0 | 0  | 2       |
| Total Theory                             |          |             |                                                  | 14            | 0 | 0  | 14      |
| Practical/ Sessional/ Audit Course       |          |             |                                                  |               |   |    |         |
| 1                                        | IV       | MN-CS491A   | Fundamentals of Front-end Development Laboratory | 0             | 0 | 2  | 1       |
| 2                                        | V        | MN-CS591A   | Server-Side Programming Laboratory               | 0             | 0 | 2  | 1       |
| 3                                        | VI       | MN-CS691A   | Advanced Front-end Development Laboratory        | 0             | 0 | 2  | 1       |
| 4                                        | VII      | MN-CS791A   | Fundamentals of Deployment Laboratory            | 0             | 0 | 6  | 3       |
| Total Practical/ Sessional/ Audit Course |          |             |                                                  | 0             | 0 | 12 | 6       |
| Total                                    |          |             |                                                  | 14            | 0 | 12 | 20      |

### B. Minor Degree in Quantum Technologies

| Sl. No.                            | Semester | Course Code | Course Name                                                                       | Contact Hours |   |   | Credits |
|------------------------------------|----------|-------------|-----------------------------------------------------------------------------------|---------------|---|---|---------|
|                                    |          |             |                                                                                   | L             | T | P |         |
| Theory                             |          |             |                                                                                   |               |   |   |         |
| 1                                  | IV       | MN-CS401B   | Foundations of Quantum Computing: Physics, Engineering, and Mathematics Computing | 4             | 0 | 0 | 4       |
| 2                                  | V        | MN-CS501B   | Survey of Quantum technologies and Applications                                   | 4             | 0 | 0 | 4       |
| 3                                  | VI       | MN-CS601B   | Foundations of Quantum Technologies                                               | 4             | 0 | 0 | 4       |
| 4                                  | VII      | MN-CS701B   | Introduction to Quantum Communication                                             | 4             | 0 | 0 | 4       |
| Total Theory                       |          |             |                                                                                   | 16            | 0 | 0 | 16      |
| Practical/ Sessional/ Audit Course |          |             |                                                                                   |               |   |   |         |

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|                                                 |     |           |                                                                                                        |           |          |          |           |
|-------------------------------------------------|-----|-----------|--------------------------------------------------------------------------------------------------------|-----------|----------|----------|-----------|
| 1                                               | IV  | MN-CS491B | Computational Skills and Numerical Modelling Laboratory (Basic Programming Lab-I)                      | 0         | 0        | 2        | 1         |
| 2                                               | V   | MN-CS591B | Quantum Mechanics and EM Modelling Laboratory (Basic Programming Lab-II)                               | 0         | 0        | 2        | 1         |
| 3                                               | VI  | MN-CS691B | Foundations of Quantum Instrumentation Laboratory (Basic Laboratory Course for Quantum Technologies-I) | 0         | 0        | 2        | 1         |
| 4                                               | VII | MN-CS791B | Foundations of Quantum Systems Laboratory (Basic Laboratory Course for Quantum Technologies-II)        | 0         | 0        | 2        | 1         |
| <i>Total Practical/ Sessional/ Audit Course</i> |     |           |                                                                                                        | <b>0</b>  | <b>0</b> | <b>8</b> | <b>4</b>  |
| <b>Total</b>                                    |     |           |                                                                                                        | <b>16</b> | <b>0</b> | <b>4</b> | <b>20</b> |