

**Department of Information Technology, IIIT-Allahabad**  
**M. Tech. (IT) with Specialization in Data Engineering**

(With effect from July 2026)

**Total Credit : 64**

Lecture-L: 1 Credit = 1 hr/ week

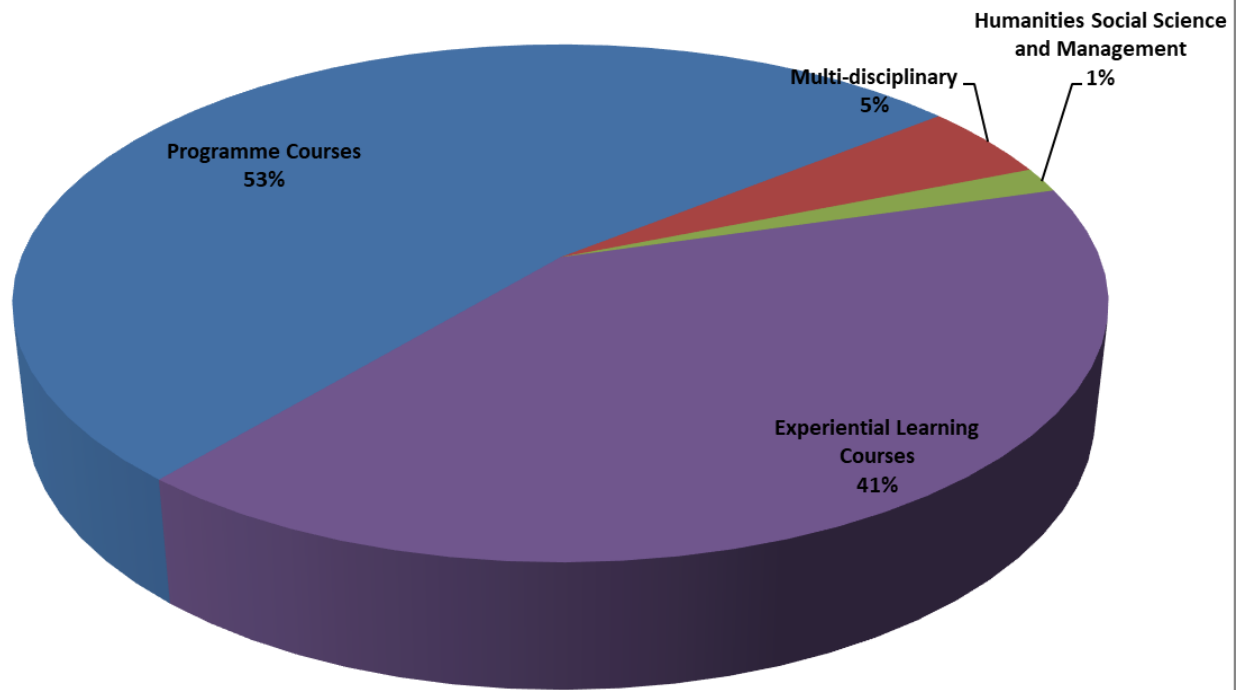
Practical-P: 1 Credit = 2 hr/week

Tutorial-T: 1 Credit = 1hr/week

Self Study-S: 1 Credit= 1 hr/week

| Semester                                                   |                                          | I  | II | III | IV | Total Credit |
|------------------------------------------------------------|------------------------------------------|----|----|-----|----|--------------|
| Basic Science Course                                       | BSC/ESC                                  | -- | -- | --  | -- | 0            |
| Engineering Science Course                                 |                                          | -- | -- | --  | -- | 0            |
| Programme Core Course (PCC)                                | Programme Courses                        | 16 | 8  | 4   | -- | 28           |
| Programme Elective Course (PEC)                            |                                          | -- | 3  | 3   | -- | 6            |
| Open/School Elective (OE/SE) other than particular program | Multi-disciplinary                       | -- | -- | 3   | -- | 3            |
| Multidisciplinary Minor (MD M)                             |                                          | -- | -- | --  | -- | 0            |
| Vocational and Skill Enhancement Course (VSEC)             | Skill Courses                            | -- | -- | --  | -- | 0            |
| Ability Enhancement Course (AEC-01)                        | Humanities Social Science and Management | -- | -- | --  | -- | 0            |
| Indian Language (AEC-02)                                   |                                          | -- | -- | --  | -- | 0            |
| Entrepreneurship/Economics/ Management Courses             |                                          | -- | -- | --  | -- | 0            |
| Indian Knowledge System (IKS)                              |                                          | -- | -- | --  | -- | 0            |
| Value Education Course (VEC)                               |                                          | -- | 1  | --  | -- | 1            |
| Research Methodology (RM)                                  | Experiential Learning Courses            | -- | -- | --  | -- | 0            |
| Internship                                                 |                                          | -- | -- | --  | -- | 0            |
| Project/AI Tool for Research/Dissertation/Thesis           |                                          | 3  | 3  | 5   | 15 | 26           |
| Community Engagement Activity (CEA)/Field Project          |                                          | -- | -- | --  | -- | 0            |
| Co-curricular & Extracurricular Activities (CCA)           | Liberal Learning Course                  | -- | -- | --  | -- | 0            |
| Total Credits ( One Major, One Minor degree)               |                                          | 19 | 15 | 15  | 15 | 64           |

## Credit Distribution



## First Semester

| Sl. No.                       | Course Name                                                         | Code  | Type | Credit       | Hours                                                                |
|-------------------------------|---------------------------------------------------------------------|-------|------|--------------|----------------------------------------------------------------------|
|                               |                                                                     |       |      |              | L-T-P-S                                                              |
| 1.                            | Mathematics for IT                                                  |       | PCC  | 4            | 3-0-2-0                                                              |
| 2.                            | Programming Practices                                               | IT502 | PCC  | 4            | 2-0-4-0                                                              |
| 3.                            | Machine Learning                                                    | IT503 | PCC  | 4            | 3-0-2-0                                                              |
| 4.                            | Advanced Data Analytics                                             | IT506 | PCC  | 4            | 3-0-2-0                                                              |
| 5.                            | AI Tools for Research                                               | IT504 | ELC  | 3            | 0-1-4-0                                                              |
| 6.                            | <u>Research Methodology &amp; IPR</u><br>(only for Dual MTech-PhD ) | IT505 | ELC  | 2            | 2-0-0-0                                                              |
| <b>Total Semester Credit:</b> |                                                                     |       |      | <b>19/21</b> | <b>11-1-14-0</b><br><b>13-1-14-0</b><br>26 Hrs./week<br>28 Hrs./week |

## Second Semester

| Sl. No.                       | Course Name                                               | Code   | Type       | Credit       | Hours                                                               |
|-------------------------------|-----------------------------------------------------------|--------|------------|--------------|---------------------------------------------------------------------|
|                               |                                                           |        |            |              | L-T-P-S                                                             |
| 1.                            | Deep Generative Models                                    | IT513  | PCC        | 4            | 3-0-2-0                                                             |
| 2.                            | Big Data Analytics                                        | IT514  | PCC        | 4            | 3-0-2-0                                                             |
| 3.                            | Elective - 1                                              | *      | PEC        | 3            | 3-0-0-0                                                             |
| 4.                            | Dissertation-I                                            | IT550  | ELC        | 3            | 0-0-6-0                                                             |
| 5.                            | HSMC-1                                                    |        | HSMC (VEC) | 1            | 1-0-0-0                                                             |
| 6.                            | <u>Independent Study</u><br># ( only for Dual MTech-PhD ) | IT551# | PEC        | 3            | 0-0-0-3                                                             |
| <b>Total Semester Credit:</b> |                                                           |        |            | <b>15/18</b> | <b>10-0-10-0</b><br><b>10-0-10-3</b><br>20 Hrs./week<br>23Hrs./week |

**Exit:** After successful completion of one year (first two semesters), students may get **PG Diploma**. They need to earn 6 credits additional, in summer, before exit.

**Dual M.Tech-Ph.D :** After the end of II Semester the M.Tech-PhD student moves into the Ph.D part of the Degree and will be henceforth governed by the Ph.D ordinance.

# Area Specific Depth of research domain advised by the Supervisor

**Grade Card \*\* Topic of study\*\***

### Third Semester

|                               | Course Name                                                                               | Code  | Type | Credit    | Hours                           |
|-------------------------------|-------------------------------------------------------------------------------------------|-------|------|-----------|---------------------------------|
|                               |                                                                                           |       |      |           | L-T-P-S                         |
| 1.                            | High Performance Computing                                                                | IT601 | PCC  | 4         | 3-0-2-0                         |
| 2.                            | Elective-2                                                                                | *     | PEC  | 3         | 3-0-0-0                         |
| 3.                            | Elective - 3 ( MOOC Course based on Thesis Theme advised by Supervisor from NPTEL/SWAYAM) | *     | OEC  | 3         | 0-0-0-3                         |
| 4.                            | Dissertation-II                                                                           | IT650 | ELC  | 5         | 0-0-10-0                        |
| <b>Total Semester Credit:</b> |                                                                                           |       |      | <b>15</b> | <b>6-0-12-3</b><br>21 Hrs./week |

### Fourth Semester

|                                  | Course Name | Code  | Type | Credit    | Hours                            |
|----------------------------------|-------------|-------|------|-----------|----------------------------------|
|                                  |             |       |      |           | L-T-P-S                          |
| 1.                               | Thesis      | IT651 | ELC  | 15        | 0-2-26-0                         |
| <b>Total Semester Credit:</b>    |             |       |      | <b>15</b> | <b>0-2-26--0</b><br>28 Hrs./week |
| <b>Cumulative Degree Credits</b> |             |       |      | <b>64</b> |                                  |

\*For each elective subject, the course code corresponding to the opted elective course shall be applicable.