**Credit Definition**

|  |  |  |
| --- | --- | --- |
| **Type** | **Duration**  **(in Hour)** | **Credit** |
| Lecture (L) | 1 | 1 |
| Tutorial (T) | 1 | 1 |
| Practical (P) | 2 | 1 |

**Total Credit**

|  |  |  |  |
| --- | --- | --- | --- |
| **Year** | **Semester** | | **Credit** |
| 1st | 1st | | 23 |
| 2nd | | 24 |
| 2nd | 3rd | | 24 |
| 4th | | 24 |
| 3rd | 5th | | 22 |
| 6th | | 22 |
| 4th | 7th | | 18 |
| 8th | | 11 |
| **Total** | | **168** | |

**Category Codification with Credit Break up**

|  |  |  |  |
| --- | --- | --- | --- |
| **Definition of Category** | **Code** | **No** | **Credit** |
| Basic Science | BS | 1 | 25 |
| Engineering Science | ES | 2 | 18 |
| Professional Core | PC | 3 | 56 |
| Professional Elective (Discipline Specific) | PE | 4 | 18 |
| Open Elective (General Elective) | OE | 5 | 16 |
| Humanities & Social Science including Management | HSM | 6 | 10 |
| Project Work / Seminar / Internship / Entrepreneurship | PSE | 7 | 17 |
| Mandatory / University Specified (Environmental Sc. / Induction Training / Indian Constitution / Foreign language) | MUS | 8 | 8 |
| **Total** | | | **168** |

**Category wise Credit Distribution**

**SEMESTER: I**

**Mandatory Induction Program – Duration 3 weeks**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sl. No. | Subject List | Category | Type | Credit | Contact hours/ Week |
|  | Engineering Physics | BS | Theory | 3 | 3 |
|  | Mathematical foundation of Computer Science | BS | Theory | 4 | 4 |
|  | Principles of Electrical Engineering | ES | Theory | 3 | 3 |
|  | Problem solving ability | ES | Theory | 4 | 4 |
|  | Communicative English | HSM | Theory | 2 | 2 |
|  | Environmental Science | HSM | Theory | 2 | 2 |
|  | Engineering Physics Lab | BS | Practical | 1 | 2 |
|  | Electrical Engineering Lab | ES | Practical | 1 | 2 |
|  | Problem solving Lab | ES | Practical | 1 | 2 |
|  | Foreign Language - I | MUS | Theory | 2 | 2 |
| Total | | | | **23** | **26** |

**SEMESTER: II**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sl. No. | Subject List | Category | Type | Credit | Contact hours/ Week |
|  | Discrete Mathematics | BS | Theory | 4 | 4 |
|  | Digital Electronics | ES | Theory | 3 | 3 |
|  | Principle of functional programming | ES | Theory | 4 | 4 |
|  | Introduction to Artificial Intelligence | PC | Theory | 3 | 3 |
|  | Probability for Computer Science | BS | Theory | 3 | 3 |
|  | Principle of functional programming Lab | ES | Practical | 1 | 2 |
|  | Digital Electronics Lab | ES | Practical | 1 | 2 |
|  | LBS-I: Python/ R | PC | Practical | 1 | 2 |
|  | Design Thinking | HSM | Theory | 2 | 2 |
|  | Foreign Language - II | MUS | Theory | 2 | 2 |
| Total | | | | **24** | **27** |

**SEMESTER: III**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sl. No. | Subject List | Category | Type | Credit | Contact hours/ Week |
|  | Computational Statistics | BS | Theory | 3 | 3 |
|  | Data Structure & Algorithm | PC | Theory | 4 | 4 |
|  | Computer Organization and Architecture | PC | Theory | 3 | 3 |
|  | Object-Oriented Programming | PC | Theory | 3 | 3 |
|  | Formal Language and Automata Theory | PC | Theory | 3 | 3 |
|  | Introduction to Innovation & Entrepreneurship | HSM | Theory | 2 | 2 |
|  | Data Structure & Algorithm Lab | PC | Practical | 1 | 2 |
|  | Computer Organization and Architecture Lab | PC | Practical | 1 | 2 |
|  | Object-Oriented Programming Lab | PC | Practical | 1 | 2 |
|  | LBS-II: (Computational Statistics) | PC | Practical | 1 | 2 |
|  | Foreign Language - III | MUS | Theory | 2 | 2 |
| Total | | | | **24** | **28** |

**SEMESTER: IV**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sl. No. | Subject List | Category | Type | Credit | Contact hours/ Week |
|  | Linear Algebra | BS | Theory | 3 | 3 |
|  | Operating Systems | PC | Theory | 3 | 3 |
|  | Database Management System | PC | Theory | 3 | 3 |
|  | Machine Learning Foundations | PC | Theory | 3 | 3 |
|  | Compiler Design | PC | Theory | 2 | 2 |
|  | Open Elective-I | OE | Theory | 4 | 4 |
|  | Operating Systems Lab | PC | Practical | 1 | 2 |
|  | Database Management System Lab | PC | Practical | 1 | 2 |
|  | Machine Learning Foundations Lab | PC | Practical | 1 | 2 |
|  | LBS-III: (linear algebra) | PC | Practical | 1 | 2 |
|  | Foreign Language - IV | MUS | Theory | 2 | 2 |
| Total | | | | **24** | **28** |

|  |  |
| --- | --- |
| **Open Elective-I** | |
| **Sl No.** | **Paper Name** |
|  | Optimizations and Multi Valued Analysis |
|  | Human Computer Interaction |
|  | Cryptography |

**SEMESTER: V**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sl. No. | Subject List | Category | Type | Credit | Contact hours/ Week |
|  | Design and Analysis of Algorithm | PC | Theory | 3 | 3 |
|  | Artificial Intelligence: Representations and problem solving | PC | Theory | 3 | 3 |
|  | Operations Research | BS | Theory | 3 | 3 |
|  | Professional Elective-I | PE | Theory | 3 | 3 |
|  | Open Elective-II | OE | Theory | 4 | 4 |
|  | Design and Analysis of Algorithm Lab | PC | Practical | 1 | 2 |
|  | Artificial Intelligence Applications Lab | PC | Practical | 1 | 2 |
|  | Operations Research Lab | BS | Practical | 1 | 2 |
|  | Professional Elective-I Lab | PE | Practical | 1 | 2 |
|  | Ethics and Policy Issues in Computing | HSM | Theory | 2 | 2 |
| Total | | | | **22** | **26** |

|  |  |
| --- | --- |
| **Open Elective-II** | |
| **Sl No.** | **Paper Name** |
|  | Internet of Things |
|  | Bioinformatics |
|  | Cognitive Robotics |
| **Professional Elective-I** | |
| **Sl No.** | **Paper Name** |
|  | Data Mining |
|  | Soft Computing |
|  | Pattern Recognition |

**SEMESTER: VI**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sl. No. | Subject List | Category | Type | Credit | Contact hours/ Week |
|  | Design and Structured of Machine Learning | PC | Theory | 4 | 4 |
|  | Neural Computation and Deep Learning | PC | Theory | 3 | 3 |
|  | Computer Networks | PC | Theory | 3 | 3 |
|  | Professional Elective-II | PE | Theory | 3 | 3 |
|  | Open Elective-III | OE | Theory | 4 | 4 |
|  | Machine Learning Lab | PC | Practical | 1 | 2 |
|  | Neural Computation and Deep Learning Lab | PC | Practical | 1 | 2 |
|  | Computer Networks Lab | PC | Practical | 1 | 2 |
|  | Technical Seminar | PSE | Sessional | 2 | 2 |
| Total | | | | **22** | **25** |

|  |  |
| --- | --- |
| **Open Elective-III** | |
| **Sl No.** | **Paper Name** |
|  | Fuzzy Set Theory |
|  | Micro Electronics and VLSI |
|  | Mobile Computing |
| **Professional Elective-II** | |
| **Sl No.** | **Paper Name** |
|  | Quantum Computing |
|  | Information Theory and Coding |
|  | Game Theory |

**SEMESTER: VII**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sl. No. | Subject List | Category | Type | Credit | Contact hours/ Week |
|  | Professional Elective-II | PE | Theory | 3 | 3 |
|  | Professional Elective-IV | PE | Theory | 3 | 3 |
|  | Professional Elective-V | PE | Theory | 3 | 3 |
|  | Open Elective-IV | OE | Theory | 4 | 4 |
|  | Professional Elective-III Lab | PE | Practical | 1 | 2 |
|  | Project-I | PSE | Sessional | 4 | 6 |
| Total | | | | **21** | **21** |

|  |  |
| --- | --- |
| **Open Elective-IV** | |
| **Sl No.** | **Paper Name** |
|  | Research Methodology |
|  | Cognitive Psychology |
|  | Soft Skill and interpersonal communication |
| **Professional Elective-III** | |
| **Sl No.** | **Paper Name** |
|  | Social Network Analysis |
|  | Computer Vision |
|  | Big Data Analytics |
| **Professional Elective-IV** | |
| **Sl No.** | **Paper Name** |
|  | Reinforcement Learning |
|  | Multi agent System and Optimizations |
|  | Software Engineering |
| **Professional Elective-V** | |
| **Sl No.** | **Paper Name** |
|  | Machine Learning for Text mining |
|  | Data Science |
|  | Blockchain and Cryptocurrency |

**SEMESTER: VIII**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sl. No. | Subject List | Category | Type | Credit | Contact hours/ Week |
|  | Industrial Training | PSE | Sessional | 2 | 0 |
|  | Project-II | PSE | Sessional | 6 | 12 |
|  | Grand Viva | PSE | Sessional | 3 | 0 |
| Total | | | | **11** | **12** |