**DEPARTMENT OF PHYSICS**

**Learning Curriculum**

**4 years UG Programme**

**SEMESTER-WISE SCHEDULE**

**SEMESTER I**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Course type | Course title | Lecture (L) | Tutorial (T) | Practical (P) | Contact Hour(CH) | Credits |
| Core | PHIN101-Physics-I | 2 | 1 | 1 | 5 | 4 |
|  |  |  |  |  |  |
| MDC | PHMD101-Basic of seismology | 3 | 0 | 0 | 4 | 3 |
| SEC | PHSE101-Elements of Sky Observation | 1 | 0 | 2 | 5 | 3 |

**SEMESTER II**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Course type | Course title | Lecture (L) | Tutorial (T) | Practical (P) | Contact Hour(CH) | Credits |
| Core | PHIN102:Physics-II | 2 | 1 | 1 | 5 | 4 |
| MDC | PHMD102 :Physics of Nano Materials | 3 | 0 | 0 | 3 | 3 |
| SEC | PHSE102:Basics of Data Analytics | 1 | 1 | 1 | 3 | 3 |

**SEMESTER III (12 Credits)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Course type | Course title | Lecture (L) | Tutorial (T) | Practical (P) | Contact Hour(CH) | Credits |
| Core | PHIN201:Classical Mechanics-I | 2 | 1 | 0 | 3 | 3 |
| PHIN202:Mathematical Physics-I | 2 | 1 | 0 | 3 | 3 |
| PHIN203:Optics & Laser Physics | 2 | 1 | 0 | 3 | 3 |
| PHIN204:Physics Lab | 0 | 0 | 3 | 6 | 3 |
| Minor | PHIN209:Fundamentals of Optics | 3 | 0 | 0 | 3 | 3 |

**SEMESTER IV(12 Credits)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Course type | Course title | Lecture (L) | Tutorial (T) | Practical (P) | Contact Hour(CH) | Credits |
| Core | PHIN205:Electrical networks & Device Electronics | 2 | 1 | 0 | 3 | 3 |
| PHIN206:Electromagnetic Theory-I | 2 | 1 | 0 | 3 | 3 |
| PHIN207:Thermodynamics and Statistical Mechanics | 2 | 1 | 0 | 3 | 3 |
| PHIN208:Physics Lab | 0 | 0 | 3 | 6 | 3 |
| Minor | PHIN212:Basic Electro Dynamics | 2 | 1 | 0 | 3 | 3 |
| SEC | PHSE201:Basics of Electronic circuit design | 2 | 0 | 1 | 3 | 3 |

**SEMESTER V(15 Credits)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Course type | Course title | Lecture (L) | Tutorial (T) | Practical (P) | Contact Hour(CH) | Credits |
| Core | PHIN301:Waves and Acoustics | 2 | 1 | 0 | 3 | 3 |
| PHIN302:Atomic Physics | 2 | 1 | 0 | 3 | 3 |
| PHIN303:Basic Material Science | 2 | 1 | 0 | 3 | 3 |
| PHIN304:Analog Electronics and Communications | 2 | 1 | 0 | 3 | 3 |
| PHIN305:Physics Lab | 0 | 0 | 3 | 6 | 3 |
| Minor | PHIN312:The Theory of Waves | 2 | 1 | 0 | 3 | 3 |

**SEMESTER VI (18 Credits)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Course type | Course title | Lecture (L) | Tutorial (T) | Practical (P) | Contact Hour(CH) | Credits |
| Core | PHIN306:Introduction to Nuclear and Particle Physics | 2 | 1 | 0 | 3 | 3 |
| PHIN307:Introduction to Plasma & Astrophysics | 2 | 1 | 0 | 3 | 3 |
| PHIN308:Quantum Mechanics-I | 2 | 1 | 0 | 3 | 3 |
| PHIN309:Operational Amplifiers& Digital Electronics | 2 | 1 | 0 | 3 | 3 |
| PHIN310:Mathematical Physics-II | 2 | 1 | 0 | 3 | 3 |
| PHIN311:Physics& Computational Lab | 0 | 0 | 3 | 6 | 3 |
| Minor | PHIN313:Modern Physics | 2 | 1 | 0 | 3 | 3 |

**FOR HONOURS**

**SEMESTER VII (18 Credits)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Course type | Course title | Lecture (L) | Tutorial (T) | Practical (P) | Contact Hour(CH) | Credits |
| Core | PHIN401:Statistical Mechanics | 2 | 1 | 0 | 3 | 3 |
| PHIN402:Classical Mechanics-II | 2 | 1 | 0 | 3 | 3 |
| PHIN403:Mathematical Physics-III | 2 | 1 | 0 | 3 | 3 |
| PHIN404:Electromagnetic Theory-II | 2 | 1 | 0 | 3 | 3 |
| PHIN405:Numerical Analysis | 2 | 1 | 0 | 3 | 3 |
| PHIN406:Physics Lab-VII | 0 | 0 | 4 | 8 | 4 |
| Minor | PHIN413: Introduction to Condensed matter physics |  |  |  |  |  |

**SEMESTER VIII (18 Credits)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Course type | Course title | Lecture (L) | Tutorial (T) | Practical (P) | Contact Hour(CH) | Credits |
| Core | PHIN407:Quantum Mechanics-II | 2 | 1 | 0 | 3 | 3 |
| PHIN408:Semiconductor Devices | 2 | 1 | 0 | 3 | 3 |
| PHIN409:Atomic and Molecular Spectroscopy | 2 | 1 | 0 | 3 | 3 |
| PHIN410:Condensed Matter Physics | 2 | 1 | 0 | 3 | 3 |
| PHIN411:Elective (DSE) | 2 | 1 | 0 | 3 | 3 |
| PHIN412:Physics Lab | 0 | 0 | 3 | 6 | 3 |
| Minor | PHIN415:Basic Electronics devices | 3 | 0 | 0 | 3 | 3 |

**FOR RESEARCH**

**SEMESTER VII (18 Credits)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Course type | Course title | Lecture (L) | Tutorial (T) | Practical (P) | Contact Hour(CH) | Credits |
| Core | PHIN401:Statistical Mechanics | 2 | 1 | 0 | 3 | 3 |
| PHIN402:Classical Mechanics-II | 2 | 1 | 0 | 3 | 3 |
| PHIN403:Mathematical Physics-III | 2 | 1 | 0 | 3 | 3 |
| PHIN404:Electromagnetic Theory-II | 2 | 1 | 0 | 3 | 3 |
| PHIN405:Numerical Analysis | 2 | 1 | 0 | 3 | 3 |
| PHIN 414:Research Project | 0 | 0 | 0 | 6 | 3 |
| Minor | PHIN 413:Introduction to condensed mater physics |  |  |  |  |  |

**SEMESTER VIII (18 Credits)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Course type | Course title | Lecture (L) | Tutorial (T) | Practical (P) | Contact Hour(CH) | Credits |
| Core | As per choice from theory paper (3 choices from following options) | (6) | (3) | (0) | (9) | (9) |
| (a)PHIN407:Quantum Mechanics-II | 2 | 1 | 0 | 3 | 3 |
| (b)PHIN408:Semiconductor Devices | 2 | 1 | 0 | 3 | 3 |
| (c)PHIN409:Atomic and Molecular Spectroscopy | 2 | 1 | 0 | 3 | 3 |
| (d)PHIN410:Condensed Matter Physics | 2 | 1 | 0 | 3 | 3 |
| (e)PHIN411:Elective (DSE) | 2 | 1 | 0 | 3 | 3 |
| PHIN 414:Research Project | 0 | 0 | 0 | 18 | 9 |
| Minor | PHIN 415:Basic electronics devices | 3 | 0 | 0 | 3 | 3 |