# Department of Mathematics

## Syllabus Frame work (UG/PG)

## UG:

| Sem No. | Paper No. | FC/ Core/ Allied | Paper Title | Lect. /Lab Hrs | Credits | Marks | | Max. Marks |
|---|---|---|---|---|---|---|---|---|
| | | | | | | CA | SE | |
| I | LC –I | FC | Language Course-I | 6 | 3 | 25 | 75 | 100 |
| | ELC- I | FC | English – I | 6 | 3 | 25 | 75 | 100 |
| | CC-I | Core | Algebra | 4 | 4 | 25 | 75 | 100 |
| | CC-II | Core | Trigonometry and Analytical Geometry of three dimensions | 4 | 4 | 25 | 75 | 100 |
| | AC – I | Allied | Allied Chemistry –I | 4 | 3 | 25 | 75 | 100 |
| | ACP - I | Allied | Allied Chemistry Practical | 2 | - | - | - | - |
| | NME-I | NME | Non Major Elective-I (One from Group A) | 2 | 2 | 25 | 75 | 100 |
| | SS – I | SS | Soft Skills-I (English) | 2 | 3 | 25 | 75 | 100 |
| | | | | | | | | |
| II | LC-II | FC | Language Course-II | 6 | 3 | 25 | 75 | 100 |
| | ELC-II | FC | English –II | 6 | 3 | 25 | 75 | 100 |
| | CC-III | Core | Calculus | 4 | 4 | 25 | 75 | 100 |
| | CC-IV | Core | Differential equations and Laplace transforms | 4 | 4 | 25 | 75 | 100 |
| | AC – II | Allied | Allied Chemistry –II | 4 | 3 | 25 | 75 | 100 |
| | ACP – I | Allied | Allied Chemistry Practical | 2 | 4 | 25 | 75 | 100 |
| | NME-II | NME | Non Major Elective-II (One from Group B) | 2 | 2 | 25 | 75 | 100 |
| | SS – II | SS | Soft Skills-II (English) | 2 | 3 | 25 | 75 | 100 |
| | | | | | | | | |
| III | LC-III | FC | Language Course-III | 6 | 3 | 25 | 75 | 100 |
| | ELC-III | FC | English Course –III | 6 | 3 | 25 | 75 | 100 |
| | CC-V | Core | Vector analysis and Fourier Series | 4 | 4 | 25 | 75 | 100 |
| | CC-VI | Core | Integral Calculus and Fourier transforms | 5 | 4 | 25 | 75 | 100 |
| | AC – III | Allied | Allied Physics –I | 4 | 3 | 25 | 75 | 100 |
| | ACP– II | Allied | Allied Physics Practical | 2 | - | - | - | - |
| | ES | ES | Environmental Studies | 1 | - | - | - | - |
| | SS – III | SS | Personality Enrichment | 2 | 3 | 25 | 75 | 100 |
| | | | | | | | | |
| IV | LC-IV | FC | Language Course-IV | 6 | 3 | 25 | 75 | 100 |
| | ELC-IV | FC | English Course –IV | 6 | 3 | 25 | 75 | 100 |

| Sem No. | Paper No. | FC/ Core/ | Paper Title | Lect. /Lab | Credits | Marks | | Max. Marks |
|---|---|---|---|---|---|---|---|---|
| | CC-VII | Core | Statics | 5 | 4 | 25 | 75 | 100 |
| | CC-VIII | Core | Numerical Methods | 4 | 4 | 25 | 75 | 100 |
| | AC – IV | Allied | Allied Physics –II | 4 | 3 | 25 | 75 | 100 |
| | ACP– II | Allied | Allied Physics Practical-II | 2 | 4 | 25 | 75 | 100 |
| | ES | ES | Environmental Studies | 1 | 2 | 25 | 75 | 100 |
| | SS – IV | SS | Computer skills | 2 | 3 | 25 | 75 | 100 |
| | EA | EA | Extension Activity | - | 1 | - | - | - |
| | | | | | | | | |

| Sem No. | Paper No. | FC/ Core/ Allied | Paper Title | Lect. /Lab Hrs | Credits | Marks | | Max. Marks |
|---|---|---|---|---|---|---|---|---|
| | | | | | | CA | SE | |
| V | CC-IX | Core | Modern Algebra | 6 | 4 | 25 | 75 | 100 |
| | CC-X | Core | Real Analysis-I | 5 | 4 | 25 | 75 | 100 |
| | CC-XI(A) | Core | Programming Language "C" | 4 | 2 | 25 | 75 | 100 |
| | CC-XI(B) | Core | Mathematical Practicals for Programming Language "C" | 2 | 2 | 40 | 60 | 100 |
| | CC-XII | Core | Dynamics | 6 | 4 | 25 | 75 | 100 |
| | EC-I | Elective | Elective Course-I (One from Group A) | 6 | 5 | 25 | 75 | 100 |
| | VE | VE | Value Based Course | 1 | 2 | 25 | 75 | 100 |
| | | | | | | | | |
| VI | CC-XIII | Core | Linear Algebra | 5 | 4 | 25 | 75 | 100 |
| | CC-XIV | Core | Real Analysis-II | 6 | 4 | 25 | 75 | 100 |
| | CC-XV | Core | Complex Analysis | 6 | 4 | 25 | 75 | 100 |
| | EC-II | Elective | Elective Course-II (One from Group B) | 6 | 5 | 25 | 75 | 100 |
| | EC-III | Elective | Elective Course-III (One from Group B) | 6 | 5 | 25 | 75 | 100 |
| **Total** | | | | | **140** | | | |

A student shall choose one elective from Group A in Semester V and two elective courses from Group B in Semester VI

| Group | Subjects | Course |
|---|---|---|
| A | Operations Research-I | EC I |
| | Elementary Number Theory | EC I |

| | | |
|---|---|---|
| B | Operations Research-II | EC II&III |
| | Astronomy | EC II&III |
| | Graph Theory | EC II&III |
| | Partial Differential Equations with Applications | EC II&III |

The Department of Mathematics offers the following Non-Major Elective courses:

1. Analytical skills and Aptitude
2. Descriptive Statistics
3. Functional Mathematics
4. Functional Statistics

List of Allied Courses*:

1. Chemistry
2. Physics

* Practical Examination at the end of even semester

# PG:

| Sem No. | Core/ Elective/Soft Skills | Paper Title | Lect. /Lab Hrs | Credits | Marks | | Max. Marks |
|---|---|---|---|---|---|---|---|
| | | | | | CA | SE | |
| I | Core | Algebra – I | 6 | 4 | 25 | 75 | 100 |
| | Core | Real Analysis – I | 6 | 4 | 25 | 75 | 100 |
| | Core | Ordinary Differential Equations | 6 | 4 | 25 | 75 | 100 |
| | Core | Graph Theory | 5 | 4 | 25 | 75 | 100 |
| | Elective I | One from Elective Group | 5 | 4 | 25 | 75 | 100 |
| | SS I | Soft Skills – I (Communication skills) | 2 | 2 | 25 | 75 | 100 |
| | | | | | | | |
| | | | | | | | |
| II | Core | Algebra – II | 6 | 4 | 25 | 75 | 100 |
| | Core | Real Analysis – II | 6 | 4 | 25 | 75 | 100 |
| | Core | Partial Differential Equations | 6 | 4 | 25 | 75 | 100 |
| | Core | Topology | 5 | 4 | 25 | 75 | 100 |
| | Elective II | One from Elective Group | 5 | 4 | 25 | 75 | 100 |
| | SS II | Soft Skills – II (Spoken English) | 2 | 2 | 25 | 75 | 100 |
| | | Internship | - | 2 | - | - | - |
| | | | | | | | |
| III | Core | Advanced Operations Research – I | 6 | 4 | 25 | 75 | 100 |
| | Core | Differential Geometry | 6 | 4 | 25 | 75 | 100 |
| | Core | Mechanics | 6 | 4 | 25 | 75 | 100 |
| | Elective III | One from Elective Group | 5 | 4 | 25 | 75 | 100 |
| | Elective IV | One from Elective Group | 5 | 4 | 25 | 75 | 100 |
| | SS III | Soft Skills – III (Computer Skills) | 2 | 2 | 25 | 75 | 100 |

| Sem No. | Core/ Elective/So | Paper Title | Lect. /Lab | Credits | Marks | | Max. Marks |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| IV | Core | Complex Analysis | 6 | 4 | 25 | 75 | 100 |
| | Core | Advanced Operations Research – II | 6 | 4 | 25 | 75 | 100 |
| | Core | Functional Analysis | 6 | 4 | 25 | 75 | 100 |
| | Core | Fluid Dynamics | 5 | 4 | 25 | 75 | 100 |
| | Elective V | One from Elective Group | 5 | 4 | 25 | 75 | 100 |
| | SS IV | Soft Skills – IV (Personality Development) | 2 | 2 | 25 | 75 | 100 |
| | | | | | | | |
| | | **Total** | | **90** | | | |

# PG - Elective Subjects

| Sl. No. | Subjects |
|---|---|
| 1 | Number Theory and Cryptography |
| 2 | Difference Equations |
| 3 | Programming in C++ (Theory and Practical) |
| 4 | Numerical Analysis |
| 5 | Formal Languages & Automata Theory |
| 6 | Wavelets |
| 7 | Visual Programming |
| 8 | Mathematical Statistics |
| 9 | Calculus of Variations and Integral Equations |
| 10 | Fuzzy sets and their applications |
| 11 | Stochastic Process |
| 12 | Financial Mathematics |
| 13 | Java Programming |
| 14 | Discrete Mathematics. |
| 15 | Tensor Analysis and Relativity |