



St. JOSEPH'S DEGREE & PG COLLEGE

(A Catholic Christian Minority Co-Education Institution, Managed by HAES)

An AUTONOMOUS College - Affiliated to Osmania University

Re-Accredited by NAAC with 'A' Grade with CGPA of 3.49

DEPARTMENT OF SCIENCE

Course Structure for B.Sc. (MPCs)

COURSE OBJECTIVES:

- To enhance the students reasoning, analytical and problem solving skills
- To identify and solve significant problems across a broad range of application areas.
- To help students gain the ability to analyze and design electronic circuits & electronic appliances
- To enable the identification of new computing trends and understanding of emerging technologies

I Year

| SEMESTER - I | SEMESTER - II |
|--|--|
| Maths-I: Differential Calculus Theory | Maths-II: Differential Equations Theory |
| Maths-I: Differential Calculus Practical | Maths-II: Differential Equations Practical |
| Physics-I: Mechanics Theory | Physics-II: Waves & Oscillations Theory |
| Physics-I: Mechanics Practical | Physics-II: Waves & Oscillations Practical |
| Computer Science-I: Object Oriented Programming using C++ Theory | Computer Science-II: Data Structures and fileprocessing Theory |
| Computer Science-I: Object Oriented Programming using C++ Practical | Computer Science-II: Data Structures and fileprocessing Practical |
| Human Values and Professional Ethics | Indian Heritage and Culture |
| English - I | English - II |
| Second Language | Second Language |

II Year

| SEMESTER - III | SEMESTER - IV |
|--|--|
| Maths-III: Real Analysis Theory | Maths-IV: Algebra Theory |
| Maths-III: Real Analysis Practical | Maths-IV: Algebra Practical |
| Physics-III: Thermodynamics Theory | Physics-IV: Optics Theory |
| Physics-III: Thermodynamics Practical | Physics-IV: Optics Practical |
| Computer Science-III: Computer Networks Theory | Computer Science-IV: Modern Database Management System Theory |
| Computer Science-III: Computer Networks Practical | Computer Science-IV: Modern Database Management System Practical |
| Skill Enhancement Course: HTML | Skill Enhancement Course: 1. Vector Calculus 2. Linear Programming |
| English - III | English - IV |
| Second Language | Second Language |

III Year

| SEMESTER - V | SEMESTER - VI |
|---|--|
| Maths-V: Linear Algebra Theory | Maths-VII: Numerical Analysis Theory |
| Maths-V: Linear Algebra Practical | Maths-VII: Numerical Analysis Practical |
| Maths-VI: (Elective) Theory 1. Integral Calculus 2. Complex Analysis | Maths-VIII: (Elective) Theory 1. Solid Geometry 2. Number Theory |
| Maths-VI: (Elective) Practical 1. Integral Calculus 2. Complex Analysis | Maths-VIII: (Elective) Practical 1. Solid Geometry 2. Number Theory |
| Physics-V: Modern Physics Theory | Physics-VII: Electromagnetism Theory |
| Physics-V: Modern Physics Practical | Physics-VII: Electromagnetism Practical |
| Physics-VI: (Elective) Theory 1. Solid State Physics 2. Modern Optics 3. Nuclear Physics | Physics-VIII: (Elective) Theory 1. Basic Electronics 2. Semiconductor Devices 3. Instrumentation & Measurement |
| Physics-VI: (Elective) Practical 1. Solid State Physics 2. Modern Optics 3. Nuclear Physics | Physics-VIII: (Elective) Practical 1. Basic Electronics 2. Semiconductor Devices 3. Instrumentation & Measurement |
| Computer Science-V: System Analysis and Design Theory | Computer Science-VII: Programming in Java Theory |
| Computer Science-V: System Analysis and Design Practical | Computer Science-VII: Programming in Java Practical |
| Computer Science-VI: (Elective) 1. PHP with MySQL Theory 2. Operating System Theory 3. Programming in Python Theory | Computer Science-VIII: (Elective) 1. Data Analytics with R Theory 2. GUI Programming Theory 3. Web Technologies Theory |
| Computer Science-VI: (Elective) 1. PHP with MySQL Practical 2. Operating System Practical 3. Programming in Python Practical | Computer Science-VIII: (Elective) 1. R Programming Practical 2. GUI Programming Practical 3. Web Technologies Practical |
| Skill Enhancement Course 1. Applied Optics 2. Renewable Energy 3. Opto Electronics | Project (Mathematics/Physics/Computer Science) |

ELIGIBILITY CRITERIA:

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SCOPE FOR HIGHER STUDIES / CAREER OPTIONS:

- **Higher Studies:** 000
- **Career Options:** 000