

Division	Faculty of Science & Health Science
School Name	School of Science & Environmental Studies
Department Name	Department of Physics
Programme Name	B. Sc. Physics (Computational Physics)

Sem	Course Type
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I

**University Core**

Effective Communication  
 Environment and Sustainability  
 Foundations of Peace  
 Indian Constitution  
 Learning to Learn  
 Yoga - I

**Programme Foundation Total**

**Programme Foundation**

Chemistry  
 Mechanics and Properties of Matter  
 Mathematics  
 Fundamentals of Programming 1  
 Physics Lab 1  
 Programmemeing Lab 1

**Programme Foundation Total**

**Programme Major**

Physics of Materials

**Programme Foundation Total**

**I Total**

II

**University Core**

Co-creation  
 Critical Thinking  
 Digital Literacy  
 Financial Literacy  
 Yoga - II

**Programme Foundation Total**

**Programme Foundation**

Heat & Thermodynamics  
 Electricity and Magnetism  
 Fundamentals of Programming 2  
 Electronics  
 Physics Lab 2  
 Programming Lab 2

**Programme Foundation Total**

**Programme Major**

Mathematical Methods in Physics 1  
 Classical Mechanics with Fluid Mechanics

**Programme Foundation Total**

**II Total**

III

**Programme Capstone Project/Problem Based Learning/Seminar and Internships**

Project Based Learning - I

**Programme Foundation Total**

**University Core**

Research Innovation Design Entrepreneurship (RIDE)

III

Rural Immersion  
Spiritual and Cultural heritage: Indian Experience

**Programme Foundation Total**

**University Electives**

University Electives - I

**Programme Foundation Total**

**Programme Foundation**

Physics Lab 3

Biology for Physicists

**Programme Foundation Total**

**Programme Major**

Quantum Mechanics

Mathematical Methods in Physics 2

Atomic and Molecular Physics

**Programme Foundation Total**

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**III Total**

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IV

**Programme Capstone Project/Problem Based Learning/Seminar and Internships**

Project Based Learning - II

**Programme Foundation Total**

**University Electives**

University Electives - II

**Programme Foundation Total**

**Programme Foundation**

Computational Physics 1

Statistics

Physics Lab 4

Computational Physics lab 1

**Programme Foundation Total**

**Programme Major**

Digital Electronics

Nuclear and Particle Physics

Electrodynamics

**Programme Foundation Total**

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**IV Total**

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V

**Programme Capstone Project/Problem Based Learning/Seminar and Internships**

Project Based Learning - III

Project 1

**Programme Foundation Total**

**Programme Electives**

Programme Elective - I

**Programme Foundation Total**

**University Core**

Managing Conflicts Peacefully: Tools and Techniques

**Programme Foundation Total**

**University Electives**

University Electives - III

**Programme Foundation Total**

**Programme Major**

Computational Physics 2

Introduction to GPU & Parallel programming

Computational physics lab 2

GPU & Parallel Programming lab

**Programme Foundation Total**

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**V Total**

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**VI**

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**Programme Capstone Project/Problem Based Learning/Seminar and Internships**

Project Based Learning - IV

Computational Physics 3

**Programme Foundation Total****Programme Electives**

Programme Elective - II

**Programme Foundation Total****University Core**

National Academic Immersion

**Programme Foundation Total****Programme Major**

Quantum Computing

Introduction to Artificial Intelligence and Machine Learning

Statistical Mechanics

Quantum Computing lab

AI and ML lab

**Programme Foundation Total**

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**VI Total**

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**VII**

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**Programme Capstone Project/Problem Based Learning/Seminar and Internships**

Computational Physics 4

Project 2

Research Methods in Physics

**Programme Foundation Total****Programme Electives**

Programme Elective - III

**Programme Foundation Total**

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**VII Total**

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**VIII**

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**Programme Capstone Project/Problem Based Learning/Seminar and Internships**

Internship

**Programme Foundation Total****Programme Electives**

Programme Elective - IV

**Programme Foundation Total**

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**VIII Total**

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**Grand Total**

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Semester	Course Name / Course Title
V	Optics
V	Condensed Matter Physics
V	Basics of Astronomy and Astrophysics
V	Physics of Energy
V	Advanced Quantum Mechanics
VI	Laser Physics
VI	Nanotechnology
VI	Cosmology
VI	Renewable and clean energy
VI	Quantum technology
VII	Computer Architecture
VII	Computer Networks
VII	Computer Graphics
VII	Cryptocurrency
VII	Internet of Things
VIII	Database Management systems
VIII	Data communication
VIII	Image processing
VIII	Blockchain technology
VIII	Data Analytics

**Sum of Total Credits**

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**16**

**160**

Programme Electives
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Programme Elective - I
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