

Syllabus

B.Sc. (HONOURS) SYLLABUS UNDER CBCS w.e.f. 2023-24 (Revised in May 2023)

UNIT I: ADVANCES IN BASICS MATHEMATICS

Straight Lines: Different forms – Reduction of general equation into various forms – Point of intersection of two straight lines **Limits and Differentiation:** Standard limits – Derivative of a function – Problems on product rule and quotient rule **Integration:** Integration as a reverse process of differentiation – Basic methods of integration **Matrices:** Types of matrices – Scalar multiple of a matrix – Multiplication of matrices – Transpose of a matrix and determinants.

UNIT II: ADVANCES IN PHYSICS

Renewable Energy: Generation, energy storage, and energy-efficient materials and devices. Recent advances in the field of nanotechnology: Quantum dots, Quantum Communication-recent advances in biophysics-recent advances in medical physics-Shape Memory Materials.

UNIT III: ADVANCES IN CHEMISTRY

Computer aided drug design and delivery, nano sensors, Chemical Biology, impact of chemical pollutants on ecosystems and human health, Dye removal-Catalysis method.

UNIT IV: ADVANCED APPLICATIONS OF MATHEMATICS, PHYSICS & CHEMISTRY

Mathematical Modelling applications in physics and chemistry Application of Renewable energy: Grid Integration and Smart Grids, Application of nanotechnology: Nanomedicine, Application of biophysics: Biophysical Imaging, Biomechanics, Neurophysics, Application of medical physics: Radiation Therapy, Nuclear medicine Solid waste management, Environmental remediation-Green Technology, Water treatment.

UNIT V: ADVANCED APPLICATIONS OF COMPUTER SCIENCE

Number System-Binary, Octal, decimal and Hexadecimal, Signals-Analog, Digital, Modem, Codec, Multiplexing, Transmission media, error detection and correction-Parity check and CRC, Networking devices-Repeater, hub, bridge, switch, router, gateway.