

Class : B.Sc. 6th Semester
Subject: Mathematics
Paper: Numerical Analysis
Teacher's Name: Sumit Goel

January 2026

Module I: Solution of Algebraic and Transcendental Equations

Bisection method, Regula-Falsi (False Position) method, Newton–Raphson method, Secant method, Rate of convergence of iterative methods, Solution of nonlinear equations and stopping criteria

Module II: Numerical Methods for Solving Simultaneous Linear Equations

Gauss Elimination Method, Gauss–Jordan Method, LU Decomposition Method, Cholesky Decomposition Method

February 2026

Module III: Iterative Methods

Jacobi's Iterative Method, Gauss–Seidel Method

Module IV: Interpolation and Difference Operators

Finite differences, Forward, backward and central differences, Newton's forward interpolation formula, Newton's backward interpolation formula, Lagrange interpolation formula, Divided differences and Newton's divided difference interpolation

March 2026

Module V: Numerical Differentiation and Integration

Numerical differentiation using interpolation formulas, Newton–Cotes quadrature formulas, Trapezoidal rule, Simpson's 1/3 rule, Simpson's 3/8 rule, Error terms in numerical integration, Applications in definite integrals

Module VI: Errors and Computer Arithmetic

Sources of errors in numerical computations, Round-off errors and truncation errors, Propagation of errors, Absolute error, relative error and percentage error, Significant digits, Floating-point arithmetic, Stability of numerical algorithms

April 2026

Module VII: Numerical Solution of Differential Equations

Euler's method, Modified Euler's method, Runge–Kutta methods (mainly second and fourth order), Predictor–corrector methods, Applications to initial value problems of ordinary differential equations

Module VIII: Revision of difficult topics as per requirement of the class

May 2026

Class Tests and Problem Solving Sessions

Class: B.Sc. 4th Semester

Subject: Mathematics

Paper: Analytical Geometry & Vector Calculus (B-23 MAT-401)

Teacher's Name: Sumit Goel

January 2026

Module I: Conic Sections

General equation of second degree, Classification of conic sections, Centre, asymptotes, axes, eccentricity, foci and directrices of conics, Tangent at any point to a conic, Chord of contact, Pole of line to a conic, Director circle of a conic, Polar equation of a conic, Tangent and normal to a conic, Confocal conics.

February 2026

Module II: Sphere and Cone

Sphere: General form, Plane section of a sphere, Sphere through a given circle, Intersection of two spheres, Tangent plane and line, Polar plane and line, Orthogonal spheres, Radical plane of two spheres, Co-axial system of spheres.

Cone: Equation of a cone, Right circular cone, Quadric cone, Enveloping cone, Tangent plane and condition of tangency.

March 2026

Module III: Cylinder and Central Conicoids

Cylinder: Right circular cylinder and enveloping cylinder.

Central conicoids: Equation of tangent plane, Director sphere, Normal to the conicoids, Polar plane of a point, Enveloping cone of a conicoid, Enveloping cylinder of a conicoid, Confocal conicoids, Reduction of second degree equations.

April 2026

Module IV: Vector Calculus

Scalar and vector product of three vectors and four vectors, Reciprocal vectors, Vector differentiation and derivative along a curve, Directional derivatives, Gradient of a scalar point function, Divergence and curl of vector point functions, Their geometrical meanings and vector identities.

Vector integration: Line integral, Surface integral, Volume integral, Theorems of Gauss, Green and Stokes and problems based on these.

May 2026

Module V: Revision and Problem Solving

Revision of important topics from all modules, Solving previous university examination questions, Discussion of difficult concepts and applications.

Module VI: Class Tests and Problem Solving Sessions

Unit tests, assignments, problem solving sessions and preparation for final examination.

Class: B.Com. 2nd Semester
Subject: Mathematics
Paper: Business Mathematics – II
Teacher's Name: Sumit Goel

January 2026

Module I: Differentiation

Differentiation, derivative of simple functions and other functions, applications of derivatives in business studies, maxima and minima of revenue, cost, demand, production and profit functions, applications in business and commerce.

February 2026

Module II: Integration

Integration of simple functions (excluding trigonometric functions), definite and indefinite integrals, basic rules of integration, applications of integration in commercial and business problems.

March 2026

Module III: Binomial Theorem and Combinatorics

Binomial Theorem, expansion and applications of binomial theorem, permutations, combinations and their applications in business related problems.

April 2026

Module IV: Linear Programming

Formulation of Linear Programming Problems (LPP), graphical method for solving LPP, introduction to simplex method, applications of linear programming in solving problems related to business and commerce.

May 2026

Module V: Revision and Problem Solving

Revision of important concepts from all modules, solving previous examination questions and discussion of difficult topics.

Module VI: Class Tests and Problem Solving Sessions

Class tests, assignments, numerical practice and preparation for final examinations.

Class: B.Sc. / BCA 2nd Semester
Subject: VAC
Paper: Human Values and Ethics
Teacher's Name: Sumit Goel

January 2026

Module I: Introduction to Value Education

Concept and need of Value Education, Meaning and importance of values in human life, Objectives of value education, Role of value education in personal and social development, Contents and process of value education.

Module II: Classification of Value Education

Types of values: personal values, social values, moral values, cultural values and spiritual values, Sources of values, Importance of values in society.

February 2026

Module III: Human Values and Ethics

Meaning and significance of human values, Relationship between values and ethics, Ethical principles in human life, Role of ethics in maintaining harmony in society.

Module IV: Relevance of Human Values

Importance of human values in modern society, Values in family, society and workplace, Development of moral responsibility and social awareness.

March 2026

Module V: Integrated Personality and Well-being

Concept of integrated personality, Role of values in personality development, Emotional and moral development, Importance of well-being and balanced life, Self-discipline and self-awareness.

Module VI: Professional Ethics and Global Citizenship

Meaning of professional ethics, Ethical responsibilities in professional life, Importance of honesty, integrity and accountability, Concept of global citizenship, Responsibilities towards society and environment.

April 2026

Module VII: Competency Based Education

Concept and objectives of competency based education, Skill development and value based learning, Importance of competency based education in higher education and professional life.

Module VIII: Revision and Discussions

Revision of important concepts, group discussions on ethical issues and values in daily li

May 2026

Module IX: Class Tests and Activity Based Learning

Class tests, assignments, case studies on ethical dilemmas, interactive sessions and preparation for end semester examination.