

JET BTech Syllabus 2025

Section 1: Science Subjects

Subject	Topics	Sub-Topics
Physics	Geometric Optics	Refraction at Prism, Refraction through Plane and Spherical Surfaces, Lens Formula, Magnification.
	Physical Optics	Interference (Young's Double Slit Experiment), Diffraction (Single Slit Diffraction), Polarisation, Speed of Light.
	Electrostatics	Coulomb's Law, Electric Field, Potential, Gauss's Law, Electric Dipole.
	Capacitors	Capacitance, Combination of Capacitors, Energy Stored in a Capacitor, Dielectrics.
	Current Electricity	Ohm's Law, Kirchhoff's Laws, Wheatstone Bridge, Potentiometer.
	EMI	Faraday's Laws, Lenz's Law, Self and Mutual Induction, Transformers.
	Atomic Physics	Bohr's Model, Spectral Lines, Hydrogen Spectrum.
	Scattering of Light	Rayleigh Scattering, Tyndall Effect, Applications of Scattering.
	Lasers	Principles of Laser Action, Types of Lasers, Applications of Lasers.
	Radioactivity	Laws of Radioactive Decay, Alpha, Beta, and Gamma Decay.
	Elementary Particles	Neutrons, Protons, Quarks, and Leptons.
	Solid-State Electronics	Semiconductors, Diodes, Transistors, Logic Gates.
	Digital Electronics	Binary Systems, Boolean Algebra, Flip-Flops, Counters.
	Soft Condensed Materials	Liquid Crystals, Polymers, Gels.
Chemistry	Metallurgy	Extraction Methods, Alloys, Refining Processes.
	Group 18 (Noble Gases)	Properties, Uses, Compounds of Xenon, Helium Applications.
	D-block Elements	Properties, Transition Metal Compounds, Coordination Chemistry.

	Coordination Compounds	Werner's Theory, Bonding, Applications.
	Chemical Bonding	VSEPR Theory, Hybridization, Molecular Orbital Theory.
	Chemical Kinetics	Rate of Reaction, Order of Reaction, Activation Energy.
	Electrochemistry	Nernst Equation, Galvanic Cells, Electrolysis.
	Solutions	Types of Solutions, Colligative Properties, Raoult's Law.
	Thermodynamics	Laws of Thermodynamics, Enthalpy, Entropy, Gibbs Free Energy.
	Colloids	Types of Colloids, Properties, Applications.
	Solids	Crystal Systems, Defects in Solids, Properties.
	Organic Chemistry	Structural Isomers, Hydrocarbons, Haloalkanes, Aldehydes, Ketones, Alkyl Groups, Amines, Biomolecules.
Mathematics	Algebra	Sequences and Series, Binomial Theorem, Logarithms.
	Matrices and Determinants	Matrix Operations, Determinants, Applications in Solving Equations.
	Vectors	Vector Addition, Scalar and Vector Products, Applications in Geometry.
	Geometry	Circles (Equations, Tangents), Conic Sections (Parabola, Ellipse, Hyperbola).
	Trigonometry	Trigonometric Ratios, Identities, Heights and Distances.
	Inverse Trigonometric Functions	Properties and Graphs, Applications in Solving Equations.
	Complex Numbers	Polar Form, De Moivre's Theorem, Roots of Complex Numbers.
	Differential Calculus	Derivatives, Applications in Maxima and Minima, Rate of Change.
	Integral Calculus	Indefinite and Definite Integrals, Applications in Areas and Volumes.
	Differential Equations	Formation, Solutions, First and Second-Order Differential Equations.

Section 2: Aptitude and Logical Reasoning

Category	Topics	Sub-Topics
Aptitude & Logical Reasoning	Analogy	Finding Relationships, Similarities in Patterns.
	Classification	Odd-One-Out, Categorization Based on Properties.
	Series Completion	Numeric, Alphabetical, and Symbol Series.
	Coding-Decoding	Number Coding, Letter Coding, Mixed Patterns.
	Blood Relations	Family Trees, Relation Analysis.
	Puzzle Test	Arrangements, Schedules, Logical Placement of Objects.
	Sequential Output Tracing	Logical Steps, Sequential Arrangements.
	Direction Sense Test	Maps, Directions, Distances.
	Logical Venn Diagram	Intersection and Union, Problem Solving with Diagrams.
	Alphabet Test	Letter Sequences, Missing Letters.
	Number Ranking and Time Sequence Test	Ranking Systems, Sequential Timing.
	Mathematical Operations	Arithmetic Logic, Basic Operations in Problem Solving.
	Logical Sequence of Words	Order of Words Based on Logic.
	Arithmetical Reasoning	Word Problems Involving Arithmetic Calculations.
	Inserting Missing Characters	Completion of Patterns in Alphanumeric Strings.
	Data Sufficiency	Logical Judgement on Data Sufficiency for Decision Making.
Decision Making	Logical Reasoning Scenarios for Best Choices.	
Assertion and Reason	Analytical Questions Involving Cause and Effect.	

	Situation Reaction Test	Responses to Given Situations.
	Verification of Truth of Statements	Judging the Truth or Falsity of Statements.

Section 3: English

Category	Topics	Sub-Topics
English	Vocabulary Usage	Synonyms, Antonyms, Homonyms, Word Meanings.
	Comprehension Ability	Reading Passages, Answering Questions Based on Context.
	Selecting Phrases	Completing Sentences with Suitable Phrases.
	Error Detection	Identifying Grammatical Errors, Sentence Corrections.
	Sentence Rearrangement	Logical Sequencing of Sentences to Form a Coherent Paragraph.
	General Usage	Usage of Tenses, Prepositions, Articles, and Conjunctions.

