JEE Advanced 2026 Syllabus

Prepared based on the expected JEE Advanced 2026 syllabus, aligned with the NCERT Class 11 and 12 curriculum. Official syllabus to be released by IIT Roorkee in October 2025 at https://jeeadv.ac.in.

Contents

1 Introduction **2**

2 Physics Syllabus **2**
- 2.1 General Physics . . . 2
- 2.2 Mechanics . . . 2
- 2.3 Thermal Physics . . . 2
- 2.4 Electricity and Magnetism . . . 2
- 2.5 Optics . . . 3
- 2.6 Modern Physics . . . 3

3 Chemistry Syllabus **3**
- 3.1 Physical Chemistry . . . 3
- 3.2 Inorganic Chemistry . . . 3
- 3.3 Organic Chemistry . . . 4

4 Mathematics Syllabus **4**
- 4.1 Algebra . . . 4
- 4.2 Trigonometry . . . 4
- 4.3 Analytical Geometry . . . 4
- 4.4 Differential Calculus . . . 4
- 4.5 Integral Calculus . . . 4
- 4.6 Vectors . . . 4
- 4.7 Probability . . . 5

5 Preparation Tips **5**

6 Additional Notes **5**

1 Introduction

The JEE Advanced 2026 syllabus covers three core subjects: Physics, Chemistry, and Mathematics, based on the NCERT curriculum for Classes 11 and 12. The syllabus is designed to test conceptual understanding, analytical skills, and problem-solving abilities. The exam consists of two mandatory papers, each three hours long, conducted in Computer-Based Test (CBT) mode. The syllabus is expected to remain consistent with the 2025 version, with no significant changes announced as of September 2025. Candidates are advised to refer to the official syllabus PDF at https://jeeadv.ac.in once released.

2 Physics Syllabus

The Physics syllabus emphasizes conceptual clarity and application-based problem-solving across the following topics:

2.1 General Physics

- Units and dimensions, dimensional analysis.
- Least count, significant figures, measurement errors.
- Methods of measurement and error analysis for physical quantities.

2.2 Mechanics

- Kinematics in one and two dimensions, projectiles, uniform circular motion.
- Newton's laws of motion, inertia, friction, and circular motion.
- Work, power, energy, and conservation laws.
- Systems of particles, center of mass, and momentum conservation.
- Rotational motion, moment of inertia, angular momentum.
- Gravitation: Universal law, gravitational potential, and field.

2.3 Thermal Physics

- Thermal expansion, specific heat, and calorimetry.
- Laws of thermodynamics, heat transfer, and blackbody radiation.
- Kinetic theory of gases.

2.4 Electricity and Magnetism

- Electrostatics: Coulomb's law, electric field, and potential.
- Gauss's law and its applications.
- Capacitance, dielectrics, and energy stored in capacitors.
- Current electricity, Kirchhoff's laws, and electrical circuits.

- Magnetic effects of current, Biot-Savart law, Ampere's law.
- Electromagnetic induction, Faraday's law, Lenz's law.

2.5 Optics

- Reflection and refraction, total internal reflection.
- Wave optics, interference, diffraction, and polarization.
- Optical instruments and ray optics.

2.6 Modern Physics

- Atomic structure, Bohr model, and quantum mechanics basics.
- Photoelectric effect, Compton scattering.
- Nuclear physics, radioactivity, and nuclear reactions.
- Dual nature of matter and radiation.

3 Chemistry Syllabus

The Chemistry syllabus is divided into Physical, Inorganic, and Organic Chemistry, covering foundational and advanced concepts.

3.1 Physical Chemistry

- General topics: Atomic structure, stoichiometry, and chemical bonding.
- States of matter: Gaseous, liquid, and solid states.
- Chemical thermodynamics: First and second laws, enthalpy, entropy.
- Chemical and ionic equilibrium.
- Electrochemistry: Conductance, electrochemical cells, Nernst equation.
- Chemical kinetics and nuclear chemistry.
- Surface chemistry: Adsorption, colloids, and catalysis.

3.2 Inorganic Chemistry

- Classification of elements and periodicity.
- Chemical bonding and molecular structure.
- Coordination compounds and organometallics.
- Principles of qualitative analysis.
- s-block, p-block, d-block, and f-block elements.
- Metallurgy and extraction of metals.

3.3 Organic Chemistry

- Basic concepts: Nomenclature, isomerism, and reaction mechanisms.
- Hydrocarbons: Alkanes, alkenes, alkynes, and aromatic compounds.
- Organic compounds containing oxygen, nitrogen, and halogens.
- Stereochemistry and biomolecules.
- Polymers and practical organic chemistry.

4 Mathematics Syllabus

The Mathematics syllabus focuses on conceptual understanding and advanced problem-solving across the following areas:

4.1 Algebra

- Complex numbers, quadratic equations, and sequences.
- Permutations, combinations, and binomial theorem.
- Matrices and determinants.

4.2 Trigonometry

- Trigonometric functions, identities, and equations.
- Inverse trigonometric functions and their properties.

4.3 Analytical Geometry

- Straight lines, circles, and conic sections (parabola, ellipse, hyperbola).
- Three-dimensional geometry: Lines, planes, and spheres.

4.4 Differential Calculus

- Limits, continuity, and differentiability.
- Applications of derivatives: Tangents, normals, and optimization.

4.5 Integral Calculus

- Indefinite and definite integrals.
- Applications of integrals: Area, volume, and arc length.

4.6 Vectors

- Vector algebra, scalar, and vector products.
- Applications in geometry and physics.

4.7 Probability

- Basic probability, conditional probability, and Bayes' theorem.
- Random variables and probability distributions.

5 Preparation Tips

- **Understand the Syllabus**: Focus only on topics listed in the official syllabus to avoid wasting time on irrelevant material.
- **NCERT as Foundation**: Use NCERT textbooks for Classes 11 and 12 to build core concepts, supplemented by advanced reference books (e.g., H.C. Verma for Physics, I.A. Maron for Mathematics, O.P. Tandon for Chemistry).
- **Practice Past Papers**: Solve previous years' JEE Advanced question papers to understand question patterns and difficulty levels.
-
- **Mock Tests**: Take regular mock tests in CBT mode to improve speed, accuracy, and familiarity with the exam format.
- **Time Management**: Create a study schedule prioritizing high-weightage topics and weaker areas, with regular revision.

6 Additional Notes

- The JEE Advanced 2026 syllabus differs from JEE Main by excluding topics like Sets, Relations, Mathematical Induction, and Statistics, while including advanced topics like Differential Equations and deeper conceptual applications.
- Candidates should regularly check https://jeeadv.ac.in for the official syllabus PDF and updates.
- The exam will be conducted by IIT Roorkee in May 2026, with results expected in June 2026.