JEE Main 2026 Syllabus

National Testing Agency (NTA)

For Paper 1 (B.E./B.Tech), Paper 2A (B.Arch), and Paper 2B (B.Planning)

Note: This syllabus is based on the JEE Main 2025 syllabus and NCERT curriculum for Classes 11 and 12, as the official JEE Main 2026 syllabus is expected to be released by NTA in October 2025. Minor updates may occur based on NCERT curriculum changes.

Contents

1 Paper 1: B.E./B.Tech Syllabus

Paper 1 focuses on Physics, Chemistry, and Mathematics, designed to test fundamental concepts and problem-solving skills for engineering aspirants.

1.1 Physics

The Physics syllabus is divided into Section A (Theory, 80% weightage) and Section B (Experimental Skills, 20% weightage). Below are the key topics:

1.1.1 Section A: Theory

- **Physics and Measurement**: Units, dimensions, errors in measurement.
- **Kinematics**: Motion in one and two dimensions, projectile motion.
- **Laws of Motion**: Newton's laws, friction, circular motion.
- **Work, Energy, and Power**: Work-energy theorem, conservation of energy.
- **Rotational Motion**: Moment of inertia, angular momentum.
- **Gravitation**: Universal law of gravitation, orbital velocity.
- **Properties of Solids and Liquids**: Elasticity, viscosity, surface tension.
- **Thermodynamics**: Laws of thermodynamics, heat transfer.
- **Kinetic Theory of Gases**: Ideal gas laws, kinetic energy of gases.
- **Oscillations and Waves**: Simple harmonic motion, wave motion.
- **Electrostatics**: Coulomb's law, electric field, potential.
- **Current Electricity**: Ohm's law, Kirchhoff's laws, circuits.
- **Magnetic Effects of Current and Magnetism**: Biot-Savart law, electromagnetic induction.
- **Electromagnetic Waves**: Properties, electromagnetic spectrum.
- **Optics**: Reflection, refraction, lenses, optical instruments.
- **Dual Nature of Matter and Radiation**: Photoelectric effect, de Broglie wavelength.
- **Atoms and Nuclei**: Atomic models, radioactivity.
- **Electronic Devices**: Semiconductors, diodes, transistors.

1.1.2 Section B: Experimental Skills

- Vernier callipers, screw gauge measurements.
- Simple pendulum, coefficient of viscosity.
- Resistivity measurement, potentiometer experiments.
- Refractive index of a glass slab.

1.2 Chemistry

Chemistry is divided into Physical, Inorganic, and Organic Chemistry, with a focus on fundamental concepts and applications.

1.2.1 Physical Chemistry

- **Some Basic Concepts in Chemistry**: Mole concept, stoichiometry.
- **Atomic Structure**: Quantum numbers, electronic configuration.
- **Chemical Bonding and Molecular Structure**: VSEPR theory, hybridization.
- **Chemical Thermodynamics**: Enthalpy, entropy, Gibbs free energy.
- **Solutions**: Colligative properties, molarity, molality.
- **Equilibrium**: Chemical and ionic equilibrium.
- **Redox Reactions and Electrochemistry**: Faraday's laws, electrochemical cells.
- **Chemical Kinetics**: Rate laws, order of reaction.

1.2.2 Inorganic Chemistry

- **Classification of Elements and Periodicity**: Periodic trends.
- **p-Block Elements**: Properties, compounds.
- **d- and f-Block Elements**: Transition metals, lanthanides.
- **Coordination Compounds**: Ligands, nomenclature, isomerism.

1.2.3 Organic Chemistry

- **Basic Principles of Organic Chemistry**: Nomenclature, isomerism.
- **Hydrocarbons**: Alkanes, alkenes, alkynes, aromatic compounds.
- **Organic Compounds Containing Halogens**: Haloalkanes, haloarenes.
- **Organic Compounds Containing Oxygen**: Alcohols, phenols, ethers, carbonyl compounds.
- **Organic Compounds Containing Nitrogen**: Amines, nitro compounds.
- **Biomolecules**: Carbohydrates, proteins, nucleic acids.

1.3 Mathematics

The Mathematics syllabus covers a broad range of topics from algebra, calculus, and geometry.

- **Sets, Relations, and Functions**: Types of functions, equivalence relations.

- **Complex Numbers and Quadratic Equations**: Argand plane, roots of equations.
- **Matrices and Determinants**: Matrix operations, properties of determinants.
- **Permutations and Combinations**: Counting principles.
- **Binomial Theorem and Its Simple Applications**: Binomial expansions.
- **Sequences and Series**: Arithmetic and geometric progressions.
- **Limit, Continuity, and Differentiability**: Properties of limits, derivatives.
- **Integral Calculus**: Definite and indefinite integrals, applications.
- **Differential Equations**: First-order equations, linear equations.
- **Co-ordinate Geometry**: Straight lines, circles, conic sections.
- **Three Dimensional Geometry**: Planes, lines, spheres.
- **Vector Algebra**: Dot and cross products, scalar triple product.
- **Statistics and Probability**: Mean, median, variance, Bayes' theorem.
- **Trigonometry**: Identities, equations, heights and distances.

2 Paper 2A: B.Arch Syllabus

Paper 2A includes Mathematics, Aptitude, and Drawing sections for architecture aspirants.

2.1 Mathematics

The Mathematics syllabus covers a broad range of topics from algebra, calculus, and geometry.

- **Sets, Relations, and Functions**: Types of functions, equivalence relations.
- **Complex Numbers and Quadratic Equations**: Argand plane, roots of equations.
- **Matrices and Determinants**: Matrix operations, properties of determinants.
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2.2 Aptitude

The Aptitude section tests candidates' awareness of architecture-related concepts, spatial reasoning, and analytical skills. It is designed to evaluate the ability to understand and interpret visual and contextual information relevant to architecture.

- **Awareness of Persons, Places, Buildings, and Materials**:
  - Knowledge of famous architects, their works, and architectural styles (e.g., Gothic, Modernism, Brutalism).
  - Understanding of iconic buildings, their historical and cultural significance (e.g., Taj Mahal, Sydney Opera House).
  - Familiarity with construction materials (e.g., concrete, steel, glass) and their properties, such as strength, durability, and aesthetics.
  - Textures and finishes used in architecture, including their visual and tactile qualities.
- **Three-Dimensional Perception**:
  - Visualizing and interpreting 3D objects from 2D drawings, such as plans, elevations, and sections.
  - Understanding perspectives, isometric views, and orthographic projections.
  - Analyzing different sides of 3D objects and their spatial relationships.
  - Mental rotation and manipulation of 3D shapes to solve spatial problems.
- **Analytical Reasoning**:
  - Visual reasoning: Identifying patterns, sequences, and relationships in shapes and figures.
  - Numerical reasoning: Solving problems involving ratios, proportions, and basic arithmetic in architectural contexts.
  - Verbal reasoning: Comprehension of architectural terminology and contextual analysis of design-related scenarios.

2.3 Drawing

The Drawing section evaluates candidates' sketching skills, creativity, and ability to represent ideas visually. It emphasizes freehand drawing and composition

skills.

- **Sketching of Scenes and Activities from Memory**:
  - Urban scenes: Streetscapes, marketplaces, or city squares with buildings, people, and vehicles.
  - Landscapes: Natural settings like rivers, mountains, or forests with attention to perspective and depth.
  - Rural life: Village scenes, traditional houses, or agricultural activities with cultural elements.
  - Emphasis on proportion, perspective, shading, and detailing to create realistic or expressive sketches.
- **2D and 3D Compositions Using Given Shapes and Forms**:
  - Creating 2D compositions using geometric shapes (e.g., circles, triangles, squares) to form balanced designs.
  - Developing 3D compositions, such as abstract sculptures or architectural models, from given forms.
  - Focus on color theory, texture, and aesthetic balance in compositions.
  - Use of symmetry, asymmetry, and spatial arrangement to convey design intent.

3 Paper 2B: B.Planning Syllabus

Paper 2B includes Mathematics, Aptitude, and Planning sections.

3.1 Mathematics

The Mathematics syllabus covers a broad range of topics from algebra, calculus, and geometry.

- **Sets, Relations, and Functions**: Types of functions, equivalence relations.
- **Complex Numbers and Quadratic Equations**: Argand plane, roots of equations.
- **Matrices and Determinants**: Matrix operations, properties of determinants.
- **Permutations and Combinations**: Counting principles.
- **Binomial Theorem and Its Simple Applications**: Binomial expansions.
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3.3 Planning

The Planning section evaluates candidates' understanding of urban planning, social issues, and related policies, focusing on their ability to apply theoretical knowledge to practical planning scenarios.

- **General Awareness**:
  - Knowledge of government programs and schemes related to urban and rural development (e.g., Smart Cities Mission, PMAY - Pradhan Mantri Awas Yojana).
  - Understanding of national and state-level policies on housing, transportation, and environmental management.
  - Awareness of social issues impacting planning, such as poverty, migration, and accessibility.
  - Familiarity with sustainable development goals (SDGs) and their relevance to urban planning.
- **Social Sciences**:
  - Urbanization: Trends, challenges, and impacts of rapid urban growth on infrastructure and resources.
  - Demography: Population dynamics, density, and their influence on urban and regional planning.
  - Economic development: Role of economic policies, industrial growth, and employment in shaping urban areas.
  - Socio-cultural factors: Influence of community needs, cultural heritage, and social equity in planning.
- **Planning Concepts**:
  - Basics of urban planning: Master plans, zoning regulations, and land-use planning.
  - Infrastructure: Planning for transportation, water supply, sanitation, and public utilities.
  - Sustainable development: Concepts of green buildings, renewable energy, and waste management in urban contexts.
  - Urban design principles: Aesthetics, functionality, and safety in public spaces and layouts.