CAREERS 360

PREPARATION Series

JEE Main 2025

Paper II Syllabus

(As Per the latest NTA Syllabus)

Contents

A Note to students

Dear JEE Main Aspirants,

It is a known fact that Jee Mains is the best entrance examination for admission to top engineering institutes in India. All the aspirants who aim to qualify for Jee Mains Have to make a perfect exam strategy to stand out of the crowd and ace the exam. With this comes lots of queries and confusion regarding the preparation strategy regarding what to study, where to study from and much more. It is very important for the aspirants to fully understand the exam pattern and syllabus of Jee Mainsto clear all their queries. The syllabus of Jee Mains Is based on the chapters of Physics, Chemistry and Mathematics of Class 11 and 12. As knowledge of the syllabus of Jee Mains Will help you all in the preparations, the Careers360 team has come up with an e-book that will explain the latest syllabus of Jee Mainsin detail. This eBook contains an analysis of the new topics that have been added and the topics that have been removed in the revised Jee Mains Syllabus in comparison to the previous year's syllabus. The Jee Mains Syllabus is divided into three sections, with each section corresponding to a specific subject: Physics, Chemistry, and Mathematics.

PHYSICS

In the Physics section, there are two parts, including the theoretical aspect and the practical aspect. The latest Jee Main syllabus is provided for each chapter in Physics, including details about newly added topics and removed topics. While some topics have been removed from the previous year's syllabus, it's recommended to review them, especially if they are interconnected with other mentioned topics. Notably, the entire communication system chapter has been removed. Also, some experiments are reduced from the previous year's syllabus.

CHEMISTRY

The Chemistry section is further divided into three parts: Physical Chemistry, Organic Chemistry, and Inorganic Chemistry.

1. Physical Chemistry
In Physical Chemistry, chapters such as "States of Matter" and "Surface Chemistry" have been completely removed. Additionally, certain topics from other chapters have been omitted.

2. Inorganic Chemistry
In Inorganic Chemistry, chapters such as "General Principles and Processes of Isolation of Metals, "Hydrogen," "S-Block Elements (Alkali and Alkaline Earth Metals)," and "Environmental Chemistry" have been entirely removed. Additionally, certain topics from the "p-block elements" chapter have been omitted.

3. Organic Chemistry

Organic Chemistry has seen the removal of chapters like “Polymers” and “Chemistry in Everyday Life.” In Organic Chemistry, chapters such as “Polymers” and “Chemistry in Everyday Life.” have been entirely removed.

MATHEMATICS

In the Mathematics section, chapters such as “Mathematical Inductions” and “Mathematical Reasoning” have been completely removed. Additionally, certain topics from other chapters have been omitted.

By conducting a thorough analysis of the new topics added and the topics removed in the revised Jee Mains Syllabus in comparison to the previous year’s syllabus, as provided in this eBook, you will be better prepared for your Jee Mains Exam.

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Good luck, and may your hard work and determination pave the way for your success in the JEE Mains

Warm Regards
Team Careers360

Syllabus for JEE (Main) Paper 2A (B.Arch.)

Part I – MATHEMATICS

UNIT 1: SETS, RELATIONS AND FUNCTIONS

Sets and their representation; Union, intersection and complement of sets and their algebraic properties; Power set; Relations, type of relations, equivalence relations, functions; one-one, into and onto functions, the composition of functions.

UNIT 2: COMPLEX NUMBERS AND QUADRATIC EQUATIONS

Complex numbers as ordered pairs of reals, Representation of complex numbers in the form a + ib and their representation in a plane, Argand diagram, algebra of complex numbers, modulus and argument (or amplitude) of a complex number, Quadratic equations in real and complex number systems and their solutions; Relations between roots and coefficients, nature of roots, the formation of quadratic equations with given roots.

UNIT3: MATRICES AND DETERMINANTS

Matrices, algebra of matrices, type of matrices, determinants and matrices of order two and three, evaluation of determinants, area of triangles using determinants; Adjoint and inverse of a square matrix; Test of consistency and solution of simultaneous linear equations in two or three variables using matrices.

UNIT 4: PERMUTATIONS AND COMBINATIONS

The fundamental principle of counting, permutations and combinations; Meaning of P(n, r) and C(n, r). Simple applications.

UNIT 5: BINOMIAL THEOREM AND ITS SIMPLE APPLICATIONS

Binomial theorem for a positive integral index, general term and middle term and simple applications.

UNIT 6: SEQUENCE AND SERIES

Arithmetic and Geometric progressions, insertion of arithmetic, geometric means between two given numbers, Relation between A.M and G.M.

UNIT 7: LIMIT, CONTINUITY AND DIFFERENTIABILITY

Real–valued functions, algebra of functions; polynomial, rational, trigonometric, logarithmic and exponential functions; inverse functions. Graphs of simple functions. Limits, continuity and differentiability. Differentiation of the sum, difference, product and quotient of two functions.

Differentiation of trigonometric, inverse trigonometric, logarithmic, exponential, composite and implicit functions; derivatives of order upto two, Applications of derivatives: Rate of change of quantities, monotonic-Increasing and decreasing functions, Maxima and minima of functions of one variable.

UNIT 8: INTEGRAL CALCULUS

Integral as an antiderivative, Fundamental integrals involving algebraic, trigonometric, exponential and logarithmic functions. Integration by substitution, by parts and by partial fractions. Integration using trigonometric identities.
Evaluation of simple integrals of the type
The fundamental theorem of calculus, properties of definite integrals. Evaluation of definite integrals, determining areas of the regions bounded by simple curves in standard forms.

$$\int \frac{dx}{x^2+a^2}, \int \frac{dx}{\sqrt{x^2 \pm a^2}}, \int \frac{dx}{a^2-x^2}, \int \frac{dx}{\sqrt{a^2-x^2}}, \int \frac{dx}{ax^2+bx+c}, \int \frac{dx}{\sqrt{ax^2+bx+c}}, \int \frac{(px+q)dx}{ax^2+bx+c},$$
$$\int \frac{(px+q)dx}{\sqrt{ax^2+bx+c}} \int \sqrt{a^2 \pm x^2}dx, \int \sqrt{x^2-a^2}dx$$

UNIT 9: DIFFERENTIAL EQUATIONS

Ordinary differential equations, their order and degree, the solution of differential equation by the method of separation of variables, solution of a homogeneous and linear differential equation of the type

$$\frac{dy}{dx} + p(x)y = q(x).$$

UNIT 10: COORDINATE GEOMETRY

Cartesian system of rectangular coordinates in a plane, distance formula, sections formula, locus and its equation, the slope of a line, parallel and perpendicular lines, intercepts of a line on the coordinate axis.
Straight line: Various forms of equations of a line, intersection of lines, angles between two lines, conditions for concurrence of three lines, the distance of a point form a line, co-ordinate of the centroid, orthocentre and circumcentre of a triangle.
Circle, conic sections: A standard form of equations of a circle, the general form of the equation of a circle, its radius and centre, equation of a circle when the endpoints of a diameter are given, points of intersection of a line and a circle with the centre at the origin and sections of conics, equations of conic sections (parabola, ellipse and hyperbola) in standard forms.

UNIT 11: THREE DIMENSIONAL GEOMETRY

Coordinates of a point in space, the distance between two points, section formula, direction ratios and direction cosines and the angle between two intersecting lines. Equation of a line; Skew lines, the shortest distance between them and its equation.

UNIT 12: VECTOR ALGEBRA

Vectors and scalars, the addition of vectors, components of a vector in two dimensions and three-dimensional spaces, scalar and vector products.

UNIT 13: STATISTICS AND PROBABILITY

Measures of dispersion; calculation of mean, median, mode of grouped and ungrouped data, calculation of standard deviation, variance and mean deviation for grouped and ungrouped data. Probability: Probability of an event, addition and multiplication theorems of probability, Baye's theorem, probability distribution of a random variable.

UNIT 14: TRIGONOMETRY

Trigonometrical identities and trigonometrical functions, inverse trigonometrical functions and their Properties.

Part II – APTITUDE TEST

UNIT - 1 Awareness of persons: Buildings, Materials.

Objects, Texture related to Architecture and Build-environment, Visualizing three- dimensional objects from two-dimensional drawings. Visualizing. Different sides of three- dimensional objects. Analytical Reasoning Mental Ability (Visual, Numerical and Verbal)

UNIT – 2 Three dimensional- perception:

Understanding and appreciation of scale and proportions of objects, building forms and elements, colour texture harmony and contrast Design and drawing of geometrical or abstract shapes and patterns in pencil. Transformation of forms both 2D and 3D union, subtraction rotation, development of surfaces and volumes, Generation of plans, elevations and 3D views of objects, creating two-dimensional and three-dimensional compositions using given shapes and forms.

Part III – DRAWING TEST

Sketching of scenes and activities from memory of urbanscape (public space, market, festivals, street scenes, monuments, recreational spaces, etc.). landscape (riverfronts. Jungle. Gardens, trees. Plants, etc.) and rural life.
To be conducted in a Drawing sheet.

Note: Candidates are advised to bring pencils, own geometry box set, crasets and colour pencils and crayons for the Drawing Test.Syllabus for JEE (Main) Paper 2B (B.Planning) - Mathematics, Aptitude Test and Planning

How to Prepare For JEE Main Paper II

In today's competitive landscape, a distinctive and well-organized study plan is essential for success in JEE Main Paper II. To develop an effective preparation strategy, consider the following key points:

- **Comprehensive Understanding of Syllabus and Exam Pattern:** Familiarize yourself thoroughly with the syllabus and exam pattern of JEE Main Paper II, and structure your study plan accordingly.
- **Balanced Time Allocation Across Subjects:** Ensure that your time is divided effectively among the core subjects—Physics, Chemistry, and Mathematics—to provide each area with ample focus.
- **Foundational Study with NCERT Textbooks:** Begin with NCERT textbooks for Grades 11 and 12, as the questions in JEE Main Paper II are primarily drawn from these foundational topics.
- **Progression from Basic to Advanced Topics:** Adopt a structured approach by moving from simpler topics to more complex ones, ensuring each concept is fully covered before progressing to the next.
- **Dedicated Time for Revision:** Allocate adequate time for revision within your study plan, as consistent review is crucial for reinforcing concepts and retaining information.
- **Regular Practice with Mock Tests and Sample Papers:** Engage in frequent practice through mock tests and sample papers to gain familiarity with the exam format and assess your readiness comprehensively.

Other Useful Resources

Are you preparing for the JEE Main exam, a crucial stepping stone towards your dream engineering college? Success in this competitive exam requires dedication, hard work, and access to high-quality study materials. To help you excel in the JEE Main exam, we have provided below some essential eBooks. Let's explore those ebooks.

JEE Main Exam's High Scoring Chapters and Topics (Just Study 40% Syllabus and Score up to 100%)

This eBook provides a comprehensive list of JEE Main important chapters and topics to study in just 40% of the syllabus and score up to 100% marks in the examination. We encourage you to focus on key chapters and topics to study smart and score high through this amazing eBook.

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JEE Main Latest Syllabus 2025

In this ebook, aspirants can check the latest JEE Main syllabus for Physics, Chemistry, and Mathematics according to National Testing Agency.

DOWNLOAD NOW

JEE Main 2025 Important Formulas for Physics

This ebook contains a comprehensive chapter-wise collection of all fundamental formulas, equations, and laws of JEE Main Physics that are essential for the quick revision of concepts of 11th-class and 12th-class Physics chapters.

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JEE Main 2025 Important Formulas for Maths

This ebook contains a comprehensive chapter-wise collection of all fundamental formulas, equations, and laws of JEE Main Maths that are essential for the quick revision of concepts of 11th-class and 12th-class Maths chapters.

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JEE Main Previous 10-Year Questions with Detailed Solutions (2015-2024)

This ebook contains JEE Main 10-year previous year question papers with detailed solutions. In total 10650 questions of Physics, Chemistry, and Mathematics with Detailed Solutions.

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JEE Main Important Topics & Books: Know from experts eBook

The e-book carries the list of the Most Important Topics and Books for JEE Main Preparation as recommended by various coaching experts. There are good chances of securing a good score in the exam if these recommended topics are prepared with extra dedication and effort.

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JEE Main - A complete preparation strategy eBook

This ebook is structured around the various phases of your preparation, from understanding the syllabus to clearing doubts and revising effectively. This ebook provides invaluable insights on managing your JEE Main study material to efficiently study and learn from important topics, high weightage chapters chapters. This e-book also covers the complete timetable, syllabus, mock tests and previous year's questions to boost exam preparation.

DOWNLOAD NOW

Video Lecture Companion eBook

This eBook has video lectures for all the key chapters in Physics, Chemistry, and Mathematics, handpicked to fit the JEE Main syllabus. These videos offer detailed explanations, problem-solving tips, and real-world examples to help you conquer even the trickiest questions on the JEE Main exam

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JEE Main - How To Clear The Class 11th Backlog?

This ebook is a valuable resource for students to clear their Class 11th backlogs during preparation for the Joint Entrance Examination (JEE) Main. This eBook is designed to offer a structured plan to help you tackle your Class 11 backlogs.

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JEE Main - 10 Full Mock Test and Explanations PDF eBook

This ebook contains a JEE Main-based Full Mock Test with detailed solutions and an answer key. For improved results in each mock test, start by attempting all the questions within 3 hours without checking the solutions. This way, you can get a feel for the real JEE Main exam environment.

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After learning from these ebooks with high-quality study materials it is time for you to test your knowledge about JEE Main concepts/topics/chapters by giving mock tests on a regular basis. To help you excel in the JEE Main mock test, we have provided below an essential eBook. Let's explore this ebook:

Thank You