

Syllabus

for JEE, MEDICAL, Foundation & Pre-Foundation Programs
(for new batches starting from April, 2023)



**National
Admission
Test**

VMC'S Flagship Test

for Admission and Scholarships, Running Successfully
for Almost 4 Decades

Note: Existing students cannot be re-enrolled / re-admitted through NAT

JEE PROGRAM

LEGACY PROGRAMS

1 Year Program for students going to Class 12th (JEE 2024)

PHYSICS

Units and Measurements, Vectors, Kinematics of a Particle, Motion in Two Dimensions, Dynamics of a Particle, Energy and Momentum

CHEMISTRY

Stoichiometry, Atomic Structure, Periodicity, Chemical Bonding, States of Matter and Thermodynamics

MATHEMATICS

Sets, Relations, Functions, Quadratic Equations, Sequence and Series, Complex Numbers, Trigonometry, Permutation and Combination, Binomial Theorem

PATTERN **Physics:** 25 Questions | **Chemistry:** 25 Questions | **Mathematics:** 25 Questions

2 Year Program for students going to Class 11th (JEE 2025)

MAT

Verbal and Non-Verbal Series, Logical Sequence of Words, Verbal and Non-Verbal Analogy, Coding and Decoding, Arithmetical Reasoning, Alphabet Test, Puzzle Test, Mirror Images, Analytical Reasoning, Blood Relation, Dice and Cube, Grouping of Identical Figures, Calendar, Logical Venn Diagrams, Clock, Verbal and Non-Verbal Classification, Paper Folding and Paper Cutting, Ranking and Time Sequence, Figure Matrix, Data Sufficiency

SCIENCE

Motion, Force, Laws of Motion, Gravitation, Work and Energy, Sound, Light-Reflection and Refraction, Human Eye and Colourful World, Matter in Our Surroundings, Is Matter Around Us Pure, Structure of Atom, Atoms and Molecules, Chemical Reactions and Equations, Acid Base and Salts, Metals and Non-Metals

MATHEMATICS

Real Numbers, Rational Numbers, Number System, Profit and Loss, Percentage, Polynomials, Linear Equation in Two Variables, Lines and Angles, Triangles, Quadrilaterals, Parallelograms, Triangles, Circles, Heron's Formula, Surface Areas, Volumes, Statistics, Trigonometry (Basic), Probability

PATTERN **MAT:** 10 Questions | **Science:** 15 Questions | **Mathematics:** 25 Questions | **Mathematics (Higher Level):** 10 Questions

MEDICAL PROGRAM

LEGACY PROGRAMS

1 Year Program for students going to Class 12th (NEET 2024)

PHYSICS

Physical World, Units and Measurements, Motion in a Straight Line, Motion in a Plane, Laws of Motion, Work, Energy and Power

CHEMISTRY

Some Basic Concepts of Chemistry, Structure of Atom, Classification of Elements and Periodicity in Properties, Chemical Bonding and Molecular Structure
Organic Chemistry: Some basic Principles and Techniques

BIOLOGY

The Living World, Biological Classification, Plant Kingdom, Animal Kingdom, Morphology of Flowering Plants, Structural Organization in Animals, Cell-The Unit of Life, Biomolecules.

PATTERN **Physics:** 30 Questions | **Chemistry:** 30 Questions | **Botany:** 30 Questions | **Zoology:** 30 Questions

2 Year Program for students going to Class 11th (NEET 2025)

Chemical reactions: Chemical equation, Balanced chemical equation, implications of a balanced chemical equation, types of chemical reactions: combination, decomposition, displacement, double displacement, precipitation, neutralization, oxidation and reduction.

Acids, bases and salts: Their definitions in terms of furnishing of H⁺ and OH⁻ ions, General properties, examples and uses, concept of pH scale (Definition relating to logarithm not required), importance of pH in everyday life; preparation and uses of sodium hydroxide, Bleaching powder, Baking soda, Washing soda and Plaster of Paris.

Reflection and Refraction: Reflection of light at curved surfaces, Images formed by spherical mirrors, centre of curvature, principal axis, principal focus, focal length, mirror formula (Derivation not required), magnification. Refraction; laws of refraction, refractive index. Refraction of light by spherical lens, Image formed by spherical lenses, Lens formula (Derivation not required), Magnification. Power of a lens.

Human eye and colourful world: Functioning of a lens in human eye, defects of vision and their corrections, applications of spherical mirrors and lenses. Refraction of light through a prism, dispersion of light, scattering of light, applications in daily life.

Life processes: 'Living Being'. Basic concept of nutrition, respiration, transport and excretion in plants and animals.

MAT

The mental ability test is to judge your power of reasoning, logical sequencing, reading comprehension.

PATTERN **MAT:** 15 Questions | **Physics:** 35 Questions | **Chemistry:** 35 Questions | **Biology:** 35 Questions

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FOUNDATION PROGRAM

NEEV PROGRAMS

3 Year Program for students going to Class 10th

MAT

Verbal and Non-Verbal Series, Logical Sequence of Words, Verbal and Non-Verbal Analogy, Coding and Decoding, Arithmetical Reasoning, Alphabet Test, Puzzle Test, Mirror Images, Analytical Reasoning, Blood Relation, Dice and Cube, Grouping of Identical Figures, Calendar, Logical Venn Diagrams, Clock, Verbal and Non-Verbal Classification, Paper Folding and Paper Cutting, Ranking and Time Sequence, Figure Matrix, Data Sufficiency

MATHEMATICS

Rational Numbers, Linear Equation in One Variable, Quadrilaterals, Square and Square Roots, Cube and Cube Roots, Factorisation, Direct and Inverse Proportion, Comparing Quantities, Algebraic Expressions and Identities, Mensuration, Exponent and Powers, Number System, Polynomials, Linear Equation in Two Variables, Lines and Angles, Triangles, Profit and Loss, Percentage

SCIENCE

Motion, Force, Laws of Motion, Gravitation, Fluids, Matter in our Surroundings, Is Matter Around Us Pure, Atoms and Molecules, Cells, Tissues, Diversity in Living Organism

PATTERN MAT: 10 Questions | Science: 15 Questions | Mathematics: 35 Questions

4 Year Program for students going to Class 9th

MAT

Verbal and Non-Verbal Series, Logical Sequence of Words, Verbal and Non-Verbal Analogy, Coding and Decoding, Arithmetical Reasoning, Alphabet Test, Puzzle Test, Mirror Images, Analytical Reasoning, Blood Relation, Dice and Cube, Grouping of Identical Figures, Calendar, Logical Venn Diagrams, Clock, Verbal and Non-Verbal Classification, Paper Folding and Paper Cutting, Ranking and Time Sequence, Figure Matrix, Data Sufficiency

MATHEMATICS

Integers, Fractions and Decimals, Simple Equations, Lines and Angles, Triangles, Congruence of Triangles, Comparing Quantities, Rational Numbers, Perimeter and Area, Algebraic Expressions, Exponents and Powers, Linear Equations in One Variable, Quadrilaterals, Square and Square Roots, Cube and Cube Roots, Factorization, Profit and loss, Percentage

SCIENCE

Crop Production and Management, Micro Organisms, Conservation of Plants and Animals, Cells, Force and Pressure, Friction, Sound, Synthetic Fibres and Plastics, Metals and Non-metals, Coal & Petroleum

PATTERN MAT: 10 Questions | Science: 15 Questions | Mathematics: 35 Questions

PRE-FOUNDATION PROGRAM

PRODIGY PROGRAMS

Program for students going to Class 8th

MAT

Verbal and Non Verbal Series, Logical Sequence of Words, Verbal and Non Verbal Analogy, Coding and Decoding, Arithmetical Reasoning, Alphabet Test, Puzzle Test, Mirror Images, Analytical Reasoning, Blood Relation, Dice and Cube, Group of Identical Figures, Calendar, Logical Venn Diagrams, Clock, Verbal and Non-Verbal Classification, Paper Folding and Paper Cutting, Ranking and Time Sequence, Figure Matrix, Data Sufficiency

MATHEMATICS

Integers, Fractions and Decimals, Lines and Angles, The Triangles and its Properties, Algebraic Expressions, Exponents and Powers, Data Handling

SCIENCE

Nutrition in Plants, Nutrition in Animals, Fibre to Fabric, Heat, Physical and Chemical Changes, Weather, Climate and Adaptations of Animals of Climate, Winds, Storms and Cyclones, Motion and Time, Light

PATTERN MAT: 10 Questions | Science: 15 Questions | Mathematics: 35 Questions

Program for students going to Class 7th

Mat

Verbal and Non Verbal Series, Logical Sequence of Words, Verbal and Non Verbal Analogy, Coding and Decoding, Mirror Image and Water Image, Blood Relation, Paper Cutting and Folding, Verbal and Non Verbal Classification, Figure Completion

MATHEMATICS

Integers, Fractions, Decimals, Understanding Basic Percentage, Ratio and Proportion, Data Handling Techniques, 3 dimensional figures understanding, Mensuration, Lines Angles and Triangles, Basic Equations

SCIENCE

Physical and Chemical Changes, Reproduction in Plants, Changes Around us, Light, Electricity and Circuits, Body Movements, Food: Where Does it Come From?, Weather, Climate and Adaptations of Animals of Climate, Fibre to Fabric, Motion and Measurement of Distances

PATTERN MAT: 10 Questions | Science: 15 Questions | Mathematics: 35 Questions

Program for students going to Class 6th

Mat

Verbal and Non Verbal Series, Logical Sequence of Words, Verbal and Non Verbal Analogy, Coding and Decoding, Mirror Image and Water Image, Blood Relation, Paper Cutting and Folding, Verbal and Non Verbal Classification, Figure Completion

MATHEMATICS

Numbers and their Understanding, Integers, Fractions, Decimals, Estimation of sum and Difference, Data Handling Techniques, Shapes and their Understanding, Basic Mensuration

SCIENCE

The skeletal system, Force and Energy, States of Matter(Solid Liquid and Gaseous), Deficiency and Communicable Diseases, Food and its Components, Living Organisms characteristics and Habitats, From Tasting to Digesting, Renewable and Non-Renewable Resources, Natural Disasters, Light

PATTERN MAT: 10 Questions | Science: 15 Questions | Mathematics: 35 Questions

SYLLABUS

for

12th Appearing / 12th Pass Students

IIT-JEE

1 Year Program for 12th PASS Students

PHYSICS

- ▶ Electrostatics
- ▶ DC Circuits
- ▶ Capacitance
- ▶ Magnetic Effects of Current
- ▶ EMI
- ▶ Physics of Atom and Nucleus
- ▶ Geometrical Optics
- ▶ Solids & Semiconductor
- ▶ Principle of Communication

CHEMISTRY

- ▶ Solid State
- ▶ Electrochemistry
- ▶ Complete Organic Chemistry (XI-XII)
- ▶ Atomic Structure
- ▶ Periodic Table
- ▶ Chemical Bonding
- ▶ Chemical Kinetics
- ▶ Energetics
- ▶ Solutions
- ▶ Gas Laws
- ▶ Gravimetric and Volumetric Analysis

MATHEMATICS

- ▶ Limits
- ▶ Continuity
- ▶ Differentiability
- ▶ Differentiation and its Applications
- ▶ Indefinite and Definite Integration
- ▶ Area under Curves
- ▶ Vectors
- ▶ 3D Co-ordinate Geometry
- ▶ Differential Equations
- ▶ Probability

MEDICAL

1 Year Program for 12th PASS Students

PHYSICS

- ▶ Electrostatics
- ▶ DC Circuits
- ▶ Capacitance
- ▶ Magnetic Effects of Current
- ▶ EMI
- ▶ Physics of Atom and Nucleus
- ▶ Geometrical Optics
- ▶ Solids & Semiconductor
- ▶ Principle of Communication

CHEMISTRY

- ▶ Solid State
- ▶ Solutions
- ▶ Electrochemistry
- ▶ Chemical Kinetics
- ▶ Surface Chemistry
- ▶ General Principles & Processes of Isolation of Elements
- ▶ *p*-Block Elements
- ▶ *d* and *f* Block Elements
- ▶ Coordination Compounds
- ▶ Haloalkanes and Haloarenes
- ▶ Alcohols, Phenols and Ethers
- ▶ Aldehydes, Ketones and Carboxylic Acids
- ▶ Organic Compounds Containing Nitrogen
- ▶ Biomolecules
- ▶ Polymers
- ▶ Chemistry in Everyday Life

BIOLOGY

- ▶ Reproduction
- ▶ Genetics and Evolution
- ▶ Biology and Human Welfare
- ▶ Biotechnology and Its Applications
- ▶ Ecology and environment