SRMJEEE 2026 APPLICATION SYLLABUS

Made by MyPath Team

Overview

The SRMJEEE (SRM Joint Engineering Entrance Exam) 2026 is a computer-based entrance examination conducted by SRM Institute of Science and Technology for admission to B.Tech programs. The exam consists of 125 multiple-choice questions across 5 subjects with a total duration of 2 hours 30 minutes (150 minutes).

Exam Pattern

Subject	Number of Questions	Time
Physics	35	Integrated (150 mins total)
Chemistry	35	
Mathematics/Biology	40	
English & Aptitude	15	
Total	**125**	**150 minutes**

PHYSICS (35 Questions)

Unit 1: Units and Measurement & Mechanics

- System of units (S.I.), fundamental and derived units
- Measurements, errors in measurement, significant figures
- Dimensions, dimensional analysis, applications
- Laws of Motion and Newton's Laws
- Projectile motion and uniform circular motion
- Friction and centripetal force
- Work, energy, potential energy, kinetic energy
- Power and collisions (elastic and inelastic)

Unit 2: Gravitation, Mechanics of Solids and Fluids

- Universal law of gravitation
- Acceleration due to gravity (variation with altitude, latitude, depth)
- Gravitational potential, escape velocity, orbital velocity
- Geostationary satellites
- Hooke's law and modulli of elasticity
- Surface tension and capillarity
- Viscosity, Poiseuille's formula, Stokes law
- Streamline and turbulent flow, Reynolds number
- Bernoulli's theorem and applications

Unit 3: Electrostatics

- Electric charge and conservation laws
- Coulomb's law and principle of superposition
- Distribution of charges in conductors
- Electric field and field lines
- Electric dipole and torque in uniform field
- Electric flux and Gauss's theorem
- Field due to infinitely long straight wire
- Equipotential surfaces
- Electrical potential energy
- Dielectrics and electric polarization
- Capacitors and capacitance
- Combination of capacitors (series and parallel)
- Energy stored in capacitors

Unit 4: Current Electricity

- Electric current, drift velocity, mobility
- Ohm's law and V-I characteristics
- Electrical energy and power
- Electrical resistivity and conductivity
- Temperature dependence of resistance
- Internal resistance of cells
- Potential difference and EMF
- Combination of cells (series and parallel)
- Kirchhoff's laws and applications
- Wheatstone bridge and Metre bridge
- Potentiometer
- Thermo-electric current

Unit 5: Magnetism and Magnetic Effects of Current

- Earth's magnetic field and magnetic elements
- Tangent law and tangent galvanometer
- Deflection magnetometer
- Biot Savart's law
- Moving coil galvanometer
- Conversion of galvanometer into voltmeter/ammeter
- Ampere's law

Unit 6: Electromagnetic Induction, Alternating Currents, and Electromagnetic Waves

- Faraday's laws of electromagnetic induction
- Induced EMF and current
- Lenz's Law and eddy currents
- Self and mutual induction
- Alternating currents (peak and RMS values)
- Reactance and impedance
- LC oscillations and LCR series circuit
- Resonance
- AC generator and transformer
- Electromagnetic waves and characteristics
- Electromagnetic spectrum

Unit 7: Optics

- Reflection and refraction of light
- Total internal reflection and optical fibers
- Refraction at spherical surfaces
- Lenses and thin lens formula
- Lens maker's formula
- Magnification and power of lens
- Combination of thin lenses
- Refraction through prism
- Wave front and Huygen's principle
- Interference (Young's double slit experiment)
- Fringe width calculations
- Diffraction from single slit
- Polarization

Unit 8: Dual Nature of Radiation and Matter & Atomic Physics

- Photoelectric effect
- Hertz and Lenard's observations
- Einstein's photoelectric equation
- Particle nature of light
- Matter waves and de-Broglie relation
- Alpha-particle scattering experiment
- Rutherford's model of atom
- Bohr model
- Hydrogen spectrum

Unit 9: Nuclear Physics

- Nuclear radius, mass, binding energy, density
- Isotopes and mass defect
- Bainbridge mass spectrometer
- Nuclear forces and neutron discovery
- Artificial radioactivity
- Radio isotopes and radio carbon dating
- Radiation hazards

- Nuclear fission and nuclear reactor
- Nuclear fusion and hydrogen bomb
- Cosmic rays and elementary particles

Unit 10: Electronic Devices

- Semiconductors and doping
- Intrinsic and extrinsic semiconductors
- PN junction diode and biasing
- Diode as rectifier
- Special purpose PN junction diodes (LED, photodiode, solar cell)
- Transistors and characteristics
- Logic gates (NOT, OR, AND, NOR, NAND)
- Universal gates and De Morgan's theorem

CHEMISTRY (35 Questions)

Unit 1: Solutions

- Types of solutions
- Expression of concentration
- Solubility of gases in liquids
- Solid solutions
- Colligative properties:
    - Relative lowering of vapor pressure
    - Raoult's law
    - Elevation of boiling point
    - Depression of freezing point
    - Osmotic pressure
    - Determination of molecular masses

Unit 2: Electrochemistry

- Redox reactions
- Conductance in electrolytic solutions
- Specific and molar conductivity
- Kohlrausch's Law
- Electrolysis and electrolytic cells
- Galvanic cells
- EMF of a cell
- Standard electrode potential
- Nernst equation and applications
- Gibbs energy change and cell EMF
- Corrosion

Unit 3: Chemical Kinetics

- Rate of reaction (average and instantaneous)
- Factors affecting reaction rate
- Order and molecularity of reactions
- Rate law and specific rate constant
- Integrated rate equations and half-life
- Collision theory
- Activation energy
- Arrhenius equation

Unit 4: Surface Chemistry

- Adsorption (physisorption and chemisorption)
- Factors affecting adsorption
- Catalysis
- Colloidal state
- Distinction between true solutions, colloids, and suspension
- Lyophilic and lyophobic colloids
- Tyndall effect
- Brownian movement
- Electrophoresis and coagulation

Unit 5: p-Block Elements

- **Group 16 Elements:** Electronic configuration, oxidation states, occurrence, trends
    - Dioxygen and Ozone
    - Sulphur and allotropic forms
    - Sulfur dioxide and Sulfuric acid
    - Oxoacids of Sulphur
- **Group 17 Elements:** Halogens
    - Hydrochloric acid
    - Interhalogen compounds
- **Group 18 Elements:** Noble gases

Unit 6: d and f Block Elements

- General introduction and electronic configuration
- Transition metals
- General trends in first row transition metals:
    - Metallic character
    - Ionization enthalpy
    - Oxidation states
    - Ionic radii
    - Color
    - Catalytic property
    - Magnetic properties
- Interstitial compounds and alloy formation

Unit 7: Coordination Compounds

- Introduction and ligands
- Coordination number
- Color and magnetic properties
- IUPAC nomenclature
- Werner's theory
- Valence Bond Theory (VBT)
- Crystal Field Theory (CFT)
- Structure and stereoisomerism

Unit 8: Haloalkanes and Haloarenes

- **Haloalkanes:** Nomenclature, C-X bond nature, physical and chemical properties
  - Substitution reactions mechanism
  - Optical rotation
- **Haloarenes:** C-X bond nature, substitution reactions
  - Uses and environmental effects
  - DDT, freons, dichloromethane, trichloromethane, iodoform

Unit 9: Alcohols, Phenols, and Ethers

- **Alcohols:** Nomenclature, preparation, physical and chemical properties, dehydration mechanism
- **Phenols:** Nomenclature, preparation, acidic nature, electrophilic substitution, uses
- **Ethers:** Nomenclature, preparation, physical and chemical properties

Unit 10: Aldehydes, Ketones, and Carboxylic Acids

- **Aldehydes and Ketones:** Nomenclature, carbonyl group, preparation, properties, nucleophilic addition mechanism, reactivity of alpha hydrogen
- **Carboxylic Acids:** Nomenclature, acidic nature, preparation, properties, uses

Unit 11: Organic Compounds Containing Nitrogen

- **Amines:** Classification, structure, preparation, physical and chemical properties, primary/secondary/tertiary amine identification
- **Diazonium Salts:** Preparation, chemical reactions, synthetic importance

Unit 12: Biomolecules

- **Carbohydrates:** Classification, monosaccharides, D-L configuration, oligosaccharides, polysaccharides, importance
- **Proteins:** Amino acids, peptide bond, structure (primary, secondary, tertiary, quaternary), denaturation
- **Nucleic Acids:** DNA and RNA
- **Vitamins:** Classification and functions

MATHEMATICS (40 Questions)

Unit 1: Sets, Relations, and Functions

- Sets and representations
- Cartesian product
- Union, intersection, algebraic properties
- Relations and equivalence relations
- Mappings (one-one, into, onto)
- Composition of mappings

Unit 2: Complex Numbers and Quadratic Equations

- Complex numbers in form a+ib
- Representation in plane
- Quadratic equations (real and complex)
- Algebraic properties of complex numbers
- Relation between roots and coefficients
- Nature of roots
- Formation of equations with given roots
- Symmetric functions of roots

Unit 3: Matrices, Determinants, and Their Applications

- Determinants and matrices (order 2 and 3)
- Minors and cofactors
- Applications of determinants (area of triangle)
- Matrix types (zero, identity, transpose, symmetric, skew-symmetric)
- Evaluation of determinants
- Matrix operations (addition, multiplication)
- Adjoint and inverse matrix
- Solution of linear equations using determinants and matrices
- Consistency of linear system equations

Unit 4: Combinatorics - Permutations and Combinations

- Fundamental principle of counting
- Permutations (without and with repetition)
- Circular permutations
- Combinations as selection
- Problems with P(n,r) and C(n,r)
- Factorial and simple applications

Unit 5: Algebra (Theory of Equations)

- Relation between roots and coefficients
- Solving equations with connected roots
- Equations with real coefficients
- Complex roots in conjugate pairs
- Transformation of equations
- Reciprocal equations

Unit 6: Differential Calculus and Its Applications

- Polynomials, rational, trigonometric, logarithmic, exponential functions
- Inverse functions and graphs
- Limits, continuity
- Differentiation (sum, difference, product, quotient)
- Differentiation of trigonometric, inverse trigonometric, logarithmic, exponential, composite, implicit functions
- Second-order derivatives
- Applications:
    - Rate of change
    - Monotonic functions
    - Maxima and minima
    - Tangents and normals
    - Rolle's and Lagrange's mean value theorems
    - Ordinary differential equations
    - Formation and solution of differential equations
    - Homogeneous and linear differential equations

Unit 7: Integral Calculus and Its Applications

- Fundamental integrals
- Integration by substitution
- Trigonometric identities in integration
- Properties of definite integrals
- Evaluation of definite integrals

Unit 8: Analytical Geometry

- **Straight Lines (2D):**
    - Normal form, symmetric form
    - Reduction into various forms
    - Intersection of lines
    - Slope, parallel, perpendicular
    - Intercepts
    - Family of straight lines
    - Concurrent lines
    - Cartesian coordinates
    - Distance formula
    - Area of triangle
    - Collinearity of points
    - Section formula
    - Properties related to triangles (centroid, incentre)
    - Locus
- **Circles (2D):**
    - Standard form equation
    - General form
    - Parametric form
    - Endpoints of diameter
    - Intersection with line
    - Tangent condition

- **Conic Sections (2D):**
  - Parabola, ellipse, hyperbola
  - Standard form equations
  - Geometric properties
- **Three-Dimensional Geometry:**
  - Direction cosines and ratios
  - Cartesian and vector equations of line
  - Skew lines
  - Shortest distance
  - Angle between lines

Unit 9: Vector Algebra

- Vectors and scalars
- Addition of vectors
- Direction cosines and ratios
- Components (2D and 3D)
- Scalar and vector products
- Scalar and vector triple products
- Application to plane geometry

Unit 10: Statistics and Probability Distribution

- **Measures of Central Tendency and Dispersion:**
  - Mean, median, mode
  - Standard deviation, variance, mean deviation
  - Grouped and ungrouped data
- **Probability:**
  - Probability of event
  - Addition and multiplication theorems
  - Conditional probability
  - Baye's theorem
  - Probability distribution
  - Bernoulli distribution
  - Binomial, Poisson, Normal distributions

Unit 11: Trigonometry

- Trigonometric ratios
- Compound angles
- Solution of triangles
- Trigonometric identities and equations
- Inverse trigonometric functions
- Properties of triangles (incentre, circumcenter, orthocenter)
- Heights and distances

BIOLOGY (40 Questions)

Unit 1: Diversity of Living World

- Biodiversity and classification importance
- Taxonomy and systematics
- Species concept and taxonomical hierarchy
- Binomial nomenclature
- Five kingdom classification (Monera, Protista, Fungi)
- Lichens, viruses, viroids
- Plant classification (Algae, Bryophytes, Pteridophytes, Gymnosperm, Angiosperm)
- Animal classification (non-chordate and chordate)
- Alternation of generation

Unit 2: Structural Organization in Animals and Plants

- **Plant tissues:** Morphology, modifications, anatomy
- **Plant parts:** Root, stem, leaf, inflorescence, flower, fruit, seed
- **Plant families:** Fabaceae, Solanaceae, Liliaceae
- **Animal tissues:** Digestive, circulatory, respiratory, nervous, reproductive systems
- Example: Cockroach and frog anatomy

Unit 3: Cell Structure and Function

- Cell theory and basic unit of life
- Prokaryotic and eukaryotic cell structure
- Plant and animal cells
- Cell envelope, membrane, wall
- Cell organelles:
    - Endoplasmic reticulum
    - Golgi bodies
    - Lysosomes and vacuoles
    - Mitochondria and ribosomes
    - Plastids and micro bodies
- Cytoskeleton, cilia, flagella, centrioles
- Nucleus (membrane, chromatin, nucleolus)
- Biomolecules (proteins, carbohydrates, lipids, nucleic acids)
- Enzymes (types, properties, action)
- Cell division (mitosis, meiosis)

Unit 4: Plant Physiology

- **Transport in Plants:**
    - Water, gases, nutrients movement
    - Diffusion and active transport
    - Plant-water relations (imbibition, water potential, osmosis, plasmolysis)
    - Long-distance transport (apoplast, symplast)
    - Transpiration pull and root pressure
    - Stomata opening/closing
    - Mineral uptake and translocation
    - Phloem transport

- **Mineral Nutrition:**
  - Essential minerals
  - Macronutrients and micronutrients
  - Deficiency symptoms
  - Hydroponics
  - Nitrogen metabolism and fixation
- **Photosynthesis:**
  - Pigments and site
  - Photochemical and biosynthetic phases
  - Cyclic and non-cyclic photophosphorylation
  - Chemiosmotic hypothesis
  - Photorespiration
  - C3 and C4 pathways
- **Respiration:**
  - Glycolysis
  - Fermentation (anaerobic)
  - TCA cycle
  - Electron transport system
  - ATP generation
- **Plant Growth and Development:**
  - Seed germination
  - Growth phases and rate
  - Differentiation and dedifferentiation
  - Growth regulators (auxin, gibberellin, cytokinin, ethylene, ABA)
  - Seed dormancy
  - Photoperiodism and vernalisation

Unit 5: Human Physiology

- **Digestion and Absorption:** Alimentary canal, enzymes, hormones, peristalsis, nutrient absorption
- **Breathing and Respiration:** Respiratory organs, mechanism, gas exchange, regulation
- **Body Fluids and Circulation:** Blood composition, groups, coagulation, lymph, heart structure, cardiac cycle, ECG
- **Excretion:** Modes, human excretory system, urine formation, osmoregulation
- **Locomotion and Movement:** Skeletal muscle, skeletal system, joints
- **Neural Control:** Neuron, nervous system, nerve impulse transmission, reflex action, sense organs
- **Chemical Coordination:** Endocrine glands and hormones, human endocrine system

Unit 6: Reproduction

- **Reproduction in Organisms:** Asexual reproduction (binary fission, budding, fragmentation)
- **Sexual Reproduction in Flowering Plants:**
  - Flower structure
  - Gametophyte development
  - Pollination types and agencies
  - Double fertilization
  - Seed and fruit development

    - Apomixis, parthenocarpy, polyembryony
- **Human Reproduction:**
    - Male and female reproductive systems
    - Gametogenesis (spermatogenesis, oogenesis)
    - Menstrual cycle
    - Fertilization and embryo development
    - Implantation, pregnancy, placenta
    - Parturition and lactation
- **Reproductive Health:**
    - STDs prevention
    - Contraception methods
    - Medical termination of pregnancy
    - Assisted reproductive technologies (IVF, ZIFT, GIFT)

Unit 7: Genetics and Evolution

- **Heredity and Variation:**
    - Mendelian inheritance
    - Incomplete dominance, co-dominance
    - Multiple alleles and blood groups
    - Pleiotropy and polygenic inheritance
    - Chromosome theory
    - Sex determination
    - Linkage and crossing over
    - Mutation and pedigree analysis
- **Molecular Basis of Inheritance:**
    - DNA as genetic material
    - DNA and RNA structure
    - DNA packaging and replication
    - Central dogma
    - Transcription and translation
    - Genetic code
    - Gene expression
    - Genome projects
    - DNA fingerprinting
- **Evolution:**
    - Origin of life
    - Evidences for evolution
    - Lamarck and Darwin's theories
    - Modern synthetic theory
    - Natural selection types
    - Gene flow and genetic drift
    - Hardy-Weinberg principle
    - Adaptive radiation
    - Human evolution

Unit 8: Biology and Human Welfare

- **Human Health and Diseases:**
  - Pathogens and parasites (malaria, dengue, filariasis, typhoid, pneumonia, etc.)
  - Vaccines and immunology
  - Cancer, HIV, and AIDS
  - Adolescence and substance abuse
- **Enhancement in Food Production:**
  - Plant breeding
  - Tissue culture
  - Single cell protein
  - Biofortification
- **Microbes in Human Welfare:**
  - Food processing
  - Sewage treatment
  - Bio-control agents and biofertilizers
  - Antibiotics production

Unit 9: Biotechnology and Its Applications

- **Principles and Processes:** Genetic engineering and recombinant DNA technology
- **Applications:**
  - Genetically modified organisms
  - Bt crops
  - RNA interference
  - Human insulin and vaccine production
  - Stem cell technology
  - Gene therapy
  - Transgenic animals
  - Biosafety and biopiracy

Unit 10: Ecology and Environment

- **Organisms and Populations:**
  - Habitat and niche
  - Abiotic factors
  - Ecological adaptations
  - Population interactions (mutualism, competition, predation, parasitism)
  - Population attributes (growth, birth rate, death rate)
- **Ecosystem:**
  - Structure and function
  - Productivity and decomposition
  - Energy flow
  - Nutrient cycles (carbon and phosphorous)
  - Ecological succession
- **Biodiversity and Conservation:**
  - Concept and patterns
  - Loss of biodiversity
  - Hotspots and endangered organisms
  - Red Data Book
  - Biosphere reserves and national parks

- **Environmental Issues:**
  - Air and water pollution
  - Agrochemicals
  - Solid waste management
  - Greenhouse effect and climate change
  - Ozone layer depletion
  - Deforestation

ENGLISH & APTITUDE (15 Questions)

English Component

- Vocabulary and comprehension
- Grammar and usage
- Reading comprehension passages
- Verbal reasoning

Aptitude Component

- Logical reasoning
- Numerical ability
- Data interpretation
- Problem-solving
- Pattern recognition
- Analytical skills

Preparation Tips

1. **Refer to Official Syllabus:** Use this document as your primary study guide
2. **Master Fundamentals:** Ensure thorough understanding of 10+2 level concepts
3. **Solve Previous Year Papers:** Practice with at least 5 years of past papers
4. **Take Mock Tests:** Regular mock tests help assess preparation level
5. **Time Management:** Practice completing the exam within 150 minutes
6. **Subject-wise Strategy:**
   - **Physics & Chemistry:** Focus on problem-solving and applications
   - **Mathematics:** Practice derivations and problem-solving
   - **Biology:** Focus on diagrams, definitions, and mechanisms
   - **English & Aptitude:** Improve speed and accuracy

Important Resources

- **Official Website:** srmist.edu.in
- **Application Portal:** applications.srmist.edu.in
- **Exam Schedule:** 3 phases (Phase 1: April 2026, Phase 2 & 3: June 2026)
- **Reference Books:** NCERT textbooks for 10+2 level studies

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About MyPath Team

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Note: Candidates should refer to the official SRMJEEE website (srmist.edu.in) for latest updates regarding exam dates, eligibility criteria, and application procedures.