RRB JE Syllabus 2025

RRB JE CBT 1 Syllabus

Subjects	Topics
Mathematics	Data Interpretation, Pipes and Cistern, Trigonometry, Clock and Calendar, Permutations and Combinations, Square Root, Probability, Mensuration, Time and Work, Speed, Distance, and Time, Partnership, Allegation and Mixture, Average, Elementary Statistics, Ratio and Proportion, Problems on Age, Profit and Loss, Simple and Compound Interest, Geometry, Percentage, HCF and LCM, Algebra, Number System
General Science	Physics, Chemistry, Life Sciences from Class 10 & 11

General Intelligence and Reasoning	Mathematical Operations Alphabetical and Number Series Jumbling Statement-Assumptions and Arguments Seating Arrangement Syllogism Ranking and Order Puzzles Input and Output Similarities and Differences Decision-Making and Conclusions Inequality Direction and Distance Blood Relations Analytical Reasoning Coding and Decoding
General Awareness	Indian Economy Indian History and Culture Geography Environmental Issues Railway Budget Current Affairs Indian Constitution General Knowledge on Railways Indian Polity United Nations Organization (UNO) Committees and Heads Awards and Honours Sports Static General Knowledge

RRB JE CBT 2 Syllabus

Subject	Topics

General Awareness	Knowledge of Current Affairs Indian Geography Culture and History of India Indian Polity and Constitution Indian Economy Environmental Issues Concerning India and the World Sports General Scientific and Technological Developments
Physics and Chemistry	12th Standard Physics and Chemistry Topics
Basics of Environment and Pollution Control	Acid Rain Waste Management Global Warming Ozone Depletion Environmental Basics Effects of Environmental Pollution and Solutions Water/Noise/Air Pollution and Their Effects
Basics of Computer Applications	Web Browsers Internet and Email Websites Computer Virus MS Office Different Data Representation Operating System Storage Devices Networking Computer Architecture Input and Output Devices

RRB JE Technical Abilities Syllabus - CBT 2

RRB JE Civil Syllabus

Subject	Topics Covered
Engineering Mechanics	Force (resolution, moment, system, composition), Equilibrium, Friction, Centroid and Center of Gravity, Simple Machines
Building Construction	Building Components (substructure, superstructure), Types of Structures (load-bearing, framed, composite)
Building Materials	Masonry Materials (stones, bricks, mortars), Timber, Miscellaneous Materials (glass, plastic, fiber, aluminum, steel, galvanized iron, bitumen, PVC, CPVC, PPF)
Construction of Substructure	Job Layout, Earthwork, Foundation (types, dewatering, coffer dams, bearing capacity)
Construction of Superstructure	Stone Masonry, Brick Masonry, Hollow Concrete Block Masonry, Composite Masonry, Cavity Wall, Doors and Windows, Vertical Communication (stairs, lifts, escalators), Scaffolding, Shoring
Building Finishes	Floors (finishes, process of laying), Walls (plastering, pointing, painting), Roofs (roofing materials including RCC)
Building Maintenance	Cracks (causes, types, repairs), Settlement (causes, remedial measures), Re-bar Techniques
Building Drawing	Conventions (lines, symbols), Building Planning (residential and public buildings, rules, byelaws), Drawings (plan, elevation, section, site plan, location plan, foundation plan, working drawing), Perspective Drawing

Concrete Technology	Properties of Cement, Aggregates, Concrete Mix Design, Testing, Quality Control, Extreme Weather Concreting, Chemical Admixtures, Special Concrete (ready mix, RCC, pre-stressed, fiber reinforced, precast, high performance)
Surveying	Types of Survey, Chain and Cross Staff Survey, Compass Survey, Leveling (dumpy level, auto level), Contouring, Area and Volume Measurements, Plane Table Survey, Theodolite Survey, Tacheometric Survey, Curves, Advanced Survey Equipment, Aerial Survey, Remote Sensing
Computer-Aided Design	CAD Software (AutoCAD, Auto Civil, 3D Max), CAD Commands, Generation of Plans, Elevations, Sections, Site Plans, Area Statements, 3D Views
Geo Technical Engineering	Design of Foundations, Pavement, Earth Retaining Structures, Earthen Dams, Soil Properties, Permeability, Shear Strength, Bearing Capacity, Compaction and Stabilization, Site Investigation
Hydraulics	Fluid Properties, Hydrostatic Pressure, Liquid Pressure Measurement, Fluid Flow Fundamentals, Flow Through Pipes and Channels, Flow Measuring Devices, Hydraulic Machines
Irrigation Engineering	Hydrology, Investigation, Reservoir Planning, Percolation Tanks, Diversion Headworks
Mechanics of Structures	Stress and Strain, Shear Force and Bending Moment, Moment of Inertia, Stresses in Beams, Analysis of Trusses, Strain Energy
Theory of Structures	Direct and Bending Stresses, Slope and Deflection, Fixed Beam, Continuous Beam, Moment Distribution Method, Columns
Design of Concrete Structures	Working Stress Method, Limit State Method, Design of Singly and Doubly Reinforced Sections, Shear, Bond, Development Length, T Beam, Slab, Column, Footings

Design of Steel Structures	Types of Sections, Grades of Steel, Strength Characteristics, IS Code, Connections, Design of Tension and Compression Members, Steel Roof Trusses, Beams, Column Bases
Transportation Engineering	Railway Engineering (alignment, gauges, track geometrics, maintenance), Bridge Engineering (site selection, parts, inspection), Tunnel Engineering (classification, methods, equipment)
Highway Engineering	Road Engineering, Road Project Investigation, Geometric Design, Road Pavements, Traffic Engineering, Hill Roads, Road Drainage, Maintenance
Environmental Engineering	Pollution Control, Public Water Supply, Domestic Sewage, Solid Waste Management, Environmental Sanitation, Plumbing
Advanced Construction Techniques and Equipment	Fibers and Plastics, Artificial Timber, Advanced Concreting Methods (underwater, ready mix, trimix), Formwork, Prefabricated Construction, Soil Reinforcing Techniques, Hoisting and Conveying Equipment, Earth Moving Machinery, Concrete Mixers, Stone Crushers, Pile Driving Equipment, Hot Mix Bitumen Plant, Bitumen Paver, Floor Polishing Machines
Estimating and Costing	Types of Estimates (approximate, detailed), Mode of Measurements, Rate Analysis
Contracts and Accounts	Types of Engineering Contracts, Tender and Tender Documents, Payment, Specifications

RRB JE Electrical Syllabus

Subject	**Topics Covered**
Basic Concepts	Resistance, Inductance, Capacitance, Current, Voltage, Power, Energy, and their Units

Circuit Law	Kirchhoff's Laws, Network Theorems for Simple Circuit Solutions
Magnetic Circuit	Flux, MMF, Reluctance, Magnetic Materials, Magnetic Calculations for Different Conductors, Electromagnetic Induction, Self and Mutual Induction
AC Fundamentals	Alternating Wave Values (Instantaneous, Peak, R.M.S., Average), Sinusoidal Waveform, Series and Parallel AC Circuits, Resonance, Tank Circuit, Polyphase System, Star and Delta Connection, 3-Phase Power, DC and Sinusoidal Response of R-L and R-C Circuits
Measurement and Measuring Instruments	Measurement of Power and Energy, Wattmeter Methods, Frequency and Phase Angle Measurement, Ammeter, Voltmeter, Multimeters, Megger, AC Bridges, CRO, Signal Generator, CT, PT, Earth Fault Detection
Electrical Machines	(a) D.C. Machines – Construction, Principles, Characteristics, Speed Control, Braking, Efficiency (b) Transformers – Construction, Operation, Equivalent Circuit, Voltage Regulation, Tests, Efficiency, Parallel Operation, Autotransformers (c) 3-Phase Induction Motors – Operation, Equivalent Circuit, Torque-Speed Characteristics, Speed Control, Braking, Fractional kW Motors, Single-Phase Induction Motors
Synchronous Machines	3-Phase E.M.F. Generation, Armature Reaction, Voltage Regulation, Parallel Operation of Alternators, Synchronizing, Active and Reactive Power Control, Applications of Synchronous Motors
Generation, Transmission, and Distribution	Power Stations, Load Factor, Tariffs, Faults, Switchgear, Protection, Buchholz Relay, Merz-Price System, Lightning Arresters, Transmission and Distribution Systems, Cables
Estimation and Costing	Lighting Scheme Estimation, Electric Installation, IE Rules, Earthing Practices

Utilization of Electrical Energy	Illumination, Electric Heating, Welding, Electroplating, Electric Drives and Motors
Basic Electronics	Electronic Devices (Diodes, Transistors, BJTs, JFETs), Simple Circuits Using These Devices

RRB JE Electronics Telecommunication Engineering Syllabus

Subject	**Topics Covered**
Electronic Components & Materials	Conductors, Semiconductors, Insulators, Magnetic Materials, Jointing & Cleaning Materials, Cells and Batteries, Relays, Switches, MCBs, Connectors
Electronic Devices and Circuits	PN Junction Diodes, Thyristors, Diode and Triode Circuits, Junction Transistors, Amplifiers, Oscillators, Multivibrators, Counters, Rectifiers, Inverters, UPS
Digital Electronics	Number System & Binary Codes, Boolean Algebra & Logic Gates, Combinational & Sequential Logic Circuits, A/D & D/A Converters, Counters, Memories
Linear Integrated Circuit	Introduction to Operational Amplifiers, Linear and Nonlinear Applications, Voltage Regulators, Timers, Phase-Locked Loops
Microprocessor and Microcontroller	Introduction to Microprocessors, 8085 Microprocessor Working, Assembly Language Programming, Peripherals, Microcontrollers
Electronic Measurements	Measuring Systems, Basic Principles of Measurement, Range Extension Methods, Cathode Ray Oscilloscope, LCD, LED Panel, Transducers
Communication Engineering	Introduction to Communication, Modulation Techniques, Multiplexing Techniques, Wave Propagation, Transmission Line Characteristics, OFC, Public Address Systems, Electronic Exchange, Radar, Cellular and Satellite Communication

Data Communication and Network	Introduction to Data Communication, Hardware and Interface, Introduction to Networks and Networking Devices, Local Area Network and Wide Area Network, Interworking
Computer Programming	Programming Concepts, Fundamentals of ‘C' and C++, Operators in ‘C' and C++, Control Statements, Functions, Arrays, Strings, Pointers, File Structure, Data Structure, DBMS
Basic Electrical Engineering	DC Circuits, AC Fundamentals, Magnetic, Thermal, and Chemical Effects of Electric Current, Earthing – Installation, Maintenance, Testing

RRB JE ME Syllabus

Subject	Topics Covered
Engineering Mechanics	Resolution of Forces, Equilibrium, Parallelogram Law, Triangle Law of Forces, Polygon Law of Forces, Lami's Theorem, Couple and Moment, Static Friction, Dynamic Friction, Limiting Angle of Friction and Repose, Forces on Inclined Plane, Moment of Inertia and Radius of Gyration of Various Sections, Newton's Laws of Motion, Projectile Motion, D'Alembert's Principle, Conservation of Energy and Momentum
Material Science	Mechanical Properties of Materials (Tensile Strength, Hardness, etc.), Classification of Steels, Heat Treatment Processes (Annealing, Hardening, etc.)
Strength of Materials	Stress, Strain, Stress-Strain Diagram, Factor of Safety, Thermal Stresses, Strain Energy, Shear Force and Bending Moment Diagrams, Torsion, Thin Cylinder Shells
Machining	Lathe Working Principle, Types of Lathes, Cutting Tool Nomenclature, Machining Operations, Cutting Fluids, Introduction to Shaper, Slotter, Planer, Broaching, Milling, Gear Manufacture, Heat Treatment of Gears

Welding	Welding Introduction, Classification, Principles of Arc and Gas Welding, Soldering and Brazing, Modern Welding Methods, MIG & TIG Welding
Grinding & Finishing Process	Metal Removal Principles, Abrasives, Grinding Machines, Centreless Grinding, Finishing Processes (Honing, Lapping, etc.), Electroplating
Metrology	Linear Measurement, Angle Measurement, Bevel Protractor, Sine Bar, Angle Slip Gauges, Measurement of Surface Roughness, Methods of Measurement by Comparison, Tracer Instruments and Interferometry, Collimators, Measuring Microscope, Interferometer, Inspection of Machine Parts Using Shadow Projection and Profile Projection
Fluid Mechanics & Hydraulic Machinery	Properties of Fluid (Density, Specific Weight, Specific Gravity, Surface Tension, Viscosity, Compressibility), Pascal's Law, Measurement of Pressures, Concept of Buoyancy, Reynolds Number, Pressure, Potential and Kinetic Energy, Total Energy, Laws of Conservation (Mass, Energy, Momentum), Velocity of Liquids and Discharge, Bernoulli's Equation and Assumptions, Venturi Meters, Pitot Tube, Current Meters, Centrifugal Pumps, Efficiencies, Working Principle of Jet & Submersible Pumps with Line Diagrams

RRB JE CSE Syllabus

Subject	**Topics Covered**
PC Software	MS Windows, MS Word, MS Excel, MS PowerPoint
Computer Fundamentals	Evolution of Computers, Hardware & Software, Internet
C Language	Structure, Loop, Control Statements, Arrays, Pointers, Functions, Structure and Union, Files

Computer Organisation	Number Systems, Logic Gates, Flip-Flops, Boolean Algebra, DMA, Instruction Sets
Information Systems	Information Concepts, Hardware & Software, Overview of Communication Systems, E-Commerce
Data Structure using C++	Object-Oriented Programming, Data Structures, Stack, Queue, Pointers, Linked List, Searching & Sorting Algorithms
DBMS Fundamentals	BASIC, Data Models, RDBMS, Relational Algebra, SQL, DDL, DML, and DCL Statements, Creating Tables, Equi-Joins, Self Joins, PL/SQL, Functions, Cursors, and Triggers
System Programming	Background, Assemblers, Loaders and Linkers, Macro Processors, Compilers
Operating System using LINUX	Operating System, Types, Features & Basic Architecture of Unix/Linux System, Unix File System & Structure, Linux Commands for Files and Directories, Filters and Pipes, Processes, Creating and Editing Files with VI Editor, System Administration, Role of System Administrator, Managing User Accounts
Web Technologies and Programming	Internet & Intranet, Hardware & Software like Bus, Ethernet, LAN, Routers, Gateways, Bridge, Switches, Subnet, Internet Service Providers, Backbones, NAPs, URLs, Domain Names, Email, Web Server and Proxy Server, Web Caches, Web Browser like Internet Explorer, Internet Viruses, Internet Security Issues, Firewall, Data Encryption, Digital Signatures and Certificates, Creating Website and Home Page, HTML Programming Basics, Syntax and Rules, Search and Search Engine for Internet, Outlook Express and Front Page
System Analysis and Design	System Components, System Planning, Fact-Finding Techniques, Tools for Documenting Procedures and Decisions, Structured Analysis, Data Flow Analysis, Flow Diagrams, Data Dictionary, Application Prototype, System Design, Software Development Specification, Design of Input, Output, Files, Control Procedures, Program Specification, etc.

Data and Network Communication	Data Communication, Distributed Processing Network Criteria, Protocols, Standards, Topologies, OSI Model Layers, TCP/IP Protocol, Digital to Digital Conversion, Digital to Analog Conversion, Digital Data Transmission, Standards, Modems, Cable Modem, Transmission Media (Guided & Unguided), Performance, Wavelength, Multiplexing, DSL, Error Detection and Correction (VRC, LRC, CRC), Ethernet, Token Bus, Token Ring
Java Programming	JAVA and Internet Support Systems and Environment, JVM, Data Types, Program Structure, Constants & Variables, Type Casting, Operators, Class, Creating Objects, Class Members, Constructors, Overloading, Inheritance, Arrays, Creating Threads (Thread Class, Thread Methods, Thread Priority, Synchronization), Applets (Executable Applet, Adding Applet to HTML, File, Passing Parameters to Applets)
Software Engineering	Software Process, Life Cycle Models, System Engineering, Software Requirements (Functional and Non-functional), Prototyping, Verification, Validation, Design Concepts and Principles (Design Heuristic, Architectural Design, User Interface Design, System Design, SCM Process), Software Testing (Types of Test, Testing Strategies, Integration and Validation Testing, System Testing, Debugging), Software Project Management (Measures and Measurements, Cost Estimation, Task Network, Error Tracking, CASE Tools)

RRB JE Printing Technology Syllabus

Subject	**Topics Covered**
Printing Systems	Different printing methods, image carriers, impression and ink transfer methods, proofing methods, suitability of jobs for various printing processes
Printing Materials	Materials used for graphic reproduction, image carriers, printing substrates, inks and coatings, binding materials

Flexo, Gravure, and Screen Printing	Flexographic principles, plate surface preparation, flexographic press work, gravure image carrier preparation, inks for gravure, slitting and rewinding, screen printing
Printing Finishing Processing	Introduction to binding and finishing, materials used in binding, methods of binding, modern commercial binding, forwarding operations, automation in binding
Image Processing	Types of originals, process room equipment, line and halftone photography, digital image processing, computer-to-film, image editing software
Design & Advertising in Print Media	Introduction to typographic design and advertising, the role of typography in design, designing aspects of books, magazines, newspapers, design of miscellaneous printed products, operations, and functions of an advertising agency
Sheet-fed Offset Machines	Offset lithographic presses, printing unit, inking and dampening

RRB JE CMA CBT 2 Syllabus 2025

Subject	**Topics Covered**
Measurements, Units, and Dimensions	Types of errors in measurements, Significance of accuracy in measurement
Light	Basic principles of light (reflection, refraction, laws of reflection, total internal reflection, interference, diffraction, polarization), Magnification formulas for microscopes and telescopes, Electromagnetic spectra

Heat	Sources of heat, Transmission of heat, Expansion of solids, liquids, gases, Temperature scales, Calorimetry, Specific heat, Latent heat, Anomalous expansion of water, Combustion, Calorific value, Specific heat of gases
Sound	Sources and propagation of sound, Velocity of sound in different media, Characteristics of sound, Reflection of sound, Echo, Resonance, Sonar, Doppler effect
Mechanics	Scalars and Vectors, Types of motion, Friction, Newton's laws of motion, Momentum, Equations of motion, Projectile motion, Range, Laws of Floatation, Work, Power, Energy, Conservation of energy, Center of mass, Center of gravity, Stability and Equilibrium, Universal law of Gravitation, Relation between 'g' and 'G', Circular motion, Kepler's Laws, Elasticity, Hooke's Law
Magnetism	Magnetic field, Uniform and non-uniform magnetic fields, Magnetic induction, Magnetic lines of force, Magnetic pole strength, Magnetic moment, Inverse square law of magnetism, Magnetic properties of materials
Electricity & Electromagnetism	Electric charge, field, intensity, potential, potential difference, Simple Electric Circuits, Conductors, Insulators, Coulomb's law, Cells, Ohm's Law, Resistances in series and parallel, Emf, Specific resistance, Kirchhoff's laws, Electric potential and energy, Electric power, Heating effect of electric current, Joule's law, Ampere's law, Solenoids, Fleming's left-hand rule, Electric motor, Electromagnetic induction, Faraday's law, Electromagnetic flux, Lenz's law, Generators, Alternating Currents, Inductance
Modern Physics	Discharge of electricity through gases, Cathode rays, Anode rays, X-rays, Atomic models (Thomson, Rutherford, Bohr), Atomic nucleus, Mass defect, Radioactivity, Properties and applications of alpha, beta, gamma radiations, Isotopes, Isobars, Isotones, Artificial radioactivity, Radioisotopes, Nuclear reactions (fission, fusion)
Electronics and Communications	Semiconductors, Diodes, p-n junction characteristics, Transistors (PNP & NPN), Zener Diodes, Simple electronic circuits, Logic gates, Modulation, Demodulation

Matter	States of matter, Elements, Compounds, Mixtures, Methods of separation, Chromatography, Behavior of gases, Gas laws, Mole concept, Dalton's, Avogadro's, Berzelius laws
Chemical Reactions	Physical and chemical changes, Types of chemical reactions, Physical and chemical properties, Chemical calculations, Uses of NaOH, Bleaching powder, Baking soda, Washing soda, Plaster of Paris
Acids and Bases, Salts	Strength and uses of acids and bases, Neutralization, Nature and uses of salts, Water of crystallization, Types of salts, Oxidation and Reduction, Rancidity, Identification of acids and bases using indicators, pH scale, Classification of salts, Solutions, Stoichiometry
Atomic Structure	Electromagnetic spectrum, Atomic spectrum, Rutherford's model, Nature of electromagnetic radiation, Planck's quantum mechanics, Photoelectric effect, Bohr's theory, Quantum mechanical model, Quantum numbers, Atomic orbitals, Electronic configuration, Stability of orbitals
Periodic Classification of Elements	Characteristics of elements in groups and periods, Atomic number and electronic configuration, Classification of elements (s-block, p-block, d-block, f-block), Periodic trends
Chemical Bonding	Ionic and Covalent Bonds, Electronic Configuration of Noble Gases, Sigma and Pi bonds, Molecular shapes and bonding angles, Hybridization, Hydrogen bonding
Carbon and its Compounds	Classification of Organic compounds, Hydrocarbons (alkanes, alkenes, alkynes), Bonding in Carbon, Allotropes of Carbon, Versatility of carbon, Functional groups, Homologous series, Chemical properties, Nomenclature, Carbohydrates, Proteins, Polymers
Environmental Chemistry	Types of pollution, Acid rain, Ozone reactions and depletion, Greenhouse effect, Global warming, Green Chemistry
Metallurgy	Occurrence of Metals, Minerals, Ores, Extraction of metals, Refining, Corrosion, Alloys and their uses