



**SUCCESS EASE**

(A unit of SE Education Pvt. Ltd.)

**SSC JE MECHANICAL**

**2017-18**

**Paper Pattern & Syllabus**

# About Us

Transformation of education and training has begun. Our task is to bring redress, establish, quality. Open the doors of opportunity, enable a true culture of learning and teaching to take root and strive for ever higher level of performance. We are a pillar of vital development of the students so that new opportunity struck them. We empower teachers and teaching assistant with our range of courses.

The courses offered are GATE, SSC JE, SSC, DMRC, NMRC. The faculties are well experienced & specialized in their own subjects always come out with new ideas of effective & interesting learning techniques. They nurture the talents of the students & provide them tremendous ease in achieving their goals.

Regular test are conducted by the teachers preparing students for these competitive exams so that they feel confident to appear in any of the competitive exams at any stage of their life.

Books are offered for all subjects for all courses. Subject wise notes and assignment are provided for every topic. The facility of online test on TESTBOOK.COM (India no. 1 online test series for RAILWAYS, SSC, GATE and all competitive exams) is provided to the students.

## WHY SUCCESS EASE?

- Consistent, focused and systematic course curriculum.
- Committed and Enthusiastic faculty members.
- 6month+1month (non-technical) class course.
- Thoroughly updated Study Materials
- Regular assessment of performance through online and offline test series
- Motivational classes and strategically planning classes to qualify exams
- Guidance till your selection
- Students can take backup classes in any batch
- Well maintained classrooms and library

## SSC JE last year cut off in Paper-1(out of 200 marks)

Engineering	UR	OBC	SC	ST	OH	HH
Electrical/Mechanical-2017	136.25	133.25	120.00			
Electrical/Mechanical-2016	115	109.5	99	94.5	87	54
Electrical/Mechanical-2015	131	125.25	114.75	105.5	100	80.5
Electrical/Mechanical-2014	117.5	109.5	102.5	93.75	93	69
Electrical/Mechanical-2013	100.75	94.75	88.75	77.25	77.25	55
Electrical/Mechanical-2012	90.5	81.5	75.5	66.5	60.25	30

## SSC JE

### PAPER-I (Objective Type)

Subject	NO. of Questions	Marks	Duration
General Intelligence & Reasoning	50	50	
General Awareness	50	50	2 Hours
Technical Part-(CIVIL, EE, ME.)	100	100	

### PAPER-II (Written)

Subject	Marks	Duration
Technical Part-(CIVIL, EE, ME.)	300	2 Hours

## RAILWAY RECRUITMENT BOARD (RRB JE/SSE)

### PART-I (General Ability)

Subject	Marks	Duration
General Intelligence & Reasoning		
General Awareness	60	
Arithmetic		

### PART-II (Technical Ability/General Science)

Subject	Marks	Duration
Basic Concepts of Physics, Civil, Mechanical, Electrical, Electronics, Computers, Environment & Pollution Control, Instrumentation & Measurement, Engineering Drawing.	90	
	Total-150	Total-2 hours

## DELHI METRO RAIL CORPORATION LTD. (DMRC/NMRC JE)

### PAPER-I

Subject	No. Of Questions	Marks	Duration
Technical/Professional Sphere (CIVIL, EE, ECE,ME)	75	75	
General awareness			90 Mints
logical ability and reasoning	45	45	
Numerical Ability			

### PAPER-II

Subject	No. Of Questions	Marks	Duration
General English	60	60	45 Mints

# SYLLABUS

Theory of Machines and Machine Design:	Concept of simple machine, Four bar linkage and link motion, Flywheels and fluctuation of energy, Power transmission by belts – V-belts and Flat belts, Clutches – Plate and Conical clutch, Gears – Type of gears, gear profile and gear ratio calculation, Governors Principles and classification, Riveted joint, Cams, Bearings, Friction in collars and pivots. Engineering Mechanics and Strength of Materials: Equilibrium of Forces, Law of motion, Friction, Concepts of stress and strain, Elastic limit and elastic constants, Bending moments and shear force diagram, Stress in composite bars, Torsion of circular shafts, Buckling of columns – Euler’s and Rankin’s theories, Thin walled pressure vessels.
Thermal Engineering:	Properties of Pure Substances : p-v & P-T diagrams of pure substance like H <sub>2</sub> O, Introduction of steam table with respect to steam generation process; definition of saturation, wet & superheated status. Definition of dryness fraction of steam, degree of superheat of steam. H-s chart of steam (Mollier’s Chart).
1st Law of Thermodynamics:	Definition of stored energy & internal energy, 1st Law of Thermodynamics of cyclic process, Non Flow Energy Equation, Flow Energy & Definition of Enthalpy, Conditions for Steady State Steady Flow; Steady State Steady Flow Energy Equation..
2nd Law of Thermodynamics	Definition of Sink, Source Reservoir of Heat, Heat Engine, Heat Pump & Refrigerator; Thermal Efficiency of Heat Engines & co-efficient of performance of Refrigerators, Kelvin – Planck & Clausius Statements of 2nd Law of Thermodynamics, Absolute or Thermodynamic Scale of temperature, Clausius Integral, Entropy, Entropy change calculation of ideal gas processes. Carnot Cycle & Carnot Efficiency, PMM-2; definition & its impossibility.
Air standard Cycles for IC engines:	Otto cycle; plot on P-V, T-S Planes; Thermal Efficiency, Diesel Cycle; Plot on P-V, T-S planes; Thermal efficiency. IC Engine Performance, IC Engine Combustion, IC Engine Cooling & Lubrication.
Rankine cycle of steam:	Simple Rankine cycle plot on P-V, T-S, h-s planes, Rankine cycle efficiency with & without pump work. Boilers; Classification; Specification.
Fittings & Accessories:	Fire Tube & Water Tube Boilers. Air Compressors & their cycles; Refrigeration cycles; Principle of a Refrigeration Plant; Nozzles & Steam Turbines Fluid Mechanics & Machinery.
Properties & Classification of Fluid:	Ideal & real fluids, Newton’s law of viscosity, Newtonian and Non Newtonian fluids, compressible and incompressible fluids.
Fluid Statics:	Pressure at a point.
Measurement of Fluid Pressure:	Manometers, U-tube, Inclined tube.
Fluid Kinematics:	Stream line, laminar & turbulent flow, external & internal flow, continuity equation.
Dynamics of ideal fluids:	Bernoulli’s equation, Total head; Velocity head; Pressure head; Application of Bernoulli’s equation.
Measurement of Flow rate Basic Principles:	Venturimeter, Pilot tube, Orifice meter
Hydraulic Turbines:	Classifications, Principles.
Centrifugal Pumps:	Classifications, Principles, Performance. Production Engineering.

Theory of Machines and Machine Design:	Concept of simple machine, Four bar linkage and link motion, Flywheels and fluctuation of energy, Power transmission by belts – V-belts and Flat belts, Clutches – Plate and Conical clutch, Gears – Type of gears, gear profile and gear ratio calculation, Governors Principles and classification, Riveted joint, Cams, Bearings, Friction in collars and pivots. Engineering Mechanics and Strength of Materials: Equilibrium of Forces, Law of motion, Friction, Concepts of stress and strain, Elastic limit and elastic constants, Bending moments and shear force diagram, Stress in composite bars, Torsion of circular shafts, Buckling of columns – Euler’s and Rankin’s theories, Thin walled pressure vessels.
Classification of Steels:	mild steel & alloy steel, Heat treatment of steel, Welding – Arc Welding, Gas Welding, Resistance Welding, Special Welding Techniques i.e. TIG, MIG, etc. (Brazing & Soldering), Welding Defects & Testing; NDT, Foundry & Casting – methods, defects, different casting processes, Forging, Extrusion, etc, Metal cutting principles, cutting tools, Basic Principles of machining with (i) Lathe (ii) Milling (iii) Drilling (iv) Shaping (v) Grinding, Machines, tools & manufacturing processes.

Why Join Success Ease?

SSC JE

SSC JE+RRB JE+DMRC JE

Thanks for Visiting Us. We Wish You Good Luck for your future.

