



**Recruitment of engineering professionals on regular basis**

RITES Ltd., a Mini Ratna Central Public Sector Enterprise under the Ministry of Railways, Govt. of India is a premier multi-disciplinary consultancy organization in the fields of transport, infrastructure and related technologies.

RITES Ltd. is in urgent need of dynamic and hard working professionals as under:

VC No.	Post	No. of Vacancies					Total (#)
		UR	EWS	OBC (NCL)	SC	ST	
153/23	Engineer (Mechanical)	1	-	7	2	-	10*

\*2 posts reserved for PwD category on Horizontal Basis #Includes Backlog Vacancies  
Category wise and post wise details of 2 vacancies reserved for Persons with Benchmark Disabilities (PwBDs) is given below:

VC No.	Post	Reserved for identified categories of Persons with Benchmark Disabilities (PwBDs)				
		Cat-a	Cat-b	Cat-c	Cat-d&e	Total PwBD
153/23	Engineer (Mechanical)	-	1	1	-	2

**Age Limit**

Maximum Age	Cut-off date for calculation of Age
32 Years	01.06.2023

**Minimum Qualifications & Experience**

VC No	Designation & Pay Scale (Rs.)	Minimum Qualification*	Minimum post - qualification experience
152/23	Engineer(Mechanical) (Rs. 40, 000 –1, 40, 000)	Full time Bachelor’s Degree in Mechanical Engineering/Technology in Mechanical/ Production/ Production & Industrial/ Manufacturing/ Mechanical/Railways/Mechatronics & Automobile or any of the above combination in part or whole	2 Years

**Experience is defined as under:**

Candidates should have at least 2 years’ post-qualification outdoor work experience in the field of production or mechanical maintenance or other mechanical engineering areas. The incumbent must have worked at a project site or factory or plant during this period of two years.

\*Candidates belonging to UR/EWS category (and candidates belonging to SC/ST/OBC(NCL)/PWD applying against unreserved posts) should have first class degree/ minimum 60% marks in Minimum Qualification for consideration against unreserved posts.

Reserved category candidates (SC/ST/OBC(NCL)/PWD as applicable) should have at least 50% marks in Minimum Qualification for consideration against reserved posts.

Educational Qualification shall be as on 01.06.2023.

**Note for Educational Qualification:**

The candidate should possess Degree recognized by AICTE; from a University incorporated by an Act of Central or State legislature in India or other Educational Institutions established by an Act of Parliament or declared to be Deemed as University under Section 3 of the University Grants Commission Act, 1956. Sections A & B examination of the Institution of Engineers (India) which is treated as equivalent to Degree by Govt. of India, and recognized by AICTE shall also be accepted.

**Selection Process**

On the basis of applications received, candidates will be required to appear in the written test (Off-Line/On-Line). The candidates may be shortlisted for selection on the basis of performance in the written test. The company reserves the right to shortlist the number of candidates for selection out of eligible candidates. Due to prevalent pandemic situation, based on the requirement and discretion of RITES, selection process may be conducted online.

Based upon the performance in the Written Test and fulfilling the conditions of eligibility; candidates shall be shortlisted for Interview.

The weightage distribution of various parameters of the selection shall be as under:

Experience	-	5%
Written Test	-	60%
Interview	-	35%
(Technical & Professional proficiency - 25 %; Personality Communication & Competency – 10%)		
Total	-	100%

A minimum of 50% marks for UR/ EWS (45% for SC/ST/OBC (NCL)/PWD against reserved posts) in written test and a minimum of 60% marks for UR/ EWS (50% for SC/ST/OBC (NCL)/ PWD against reserved posts) in interview will be required to enable the candidate to be considered for placement on panel. There will be no minimum qualifying marks required in the aggregate.

**There will be 125 objective type question carrying one mark each for a duration of 2.5 Hours. There will be no negative marking system applicable and therefore, no marks will be deducted in case of incorrect answer. Candidates belonging to PwD Category are eligible for an additional compensatory time of 50 minutes.**

Appointment of selected candidates will be subject to their being found medically fit in the Medical Examination to be conducted as per RITES Rules and Standards of Medical Fitness for the relevant post.

Candidates have the option to appear for interview either in Hindi or English.

**Relaxations & Concessions**

Reservation/ relaxation/ concessions to EWS/ SC/ST/OBC (NCL)/PWD/ Ex-SM/ J&K Domicile would be provided against reserved posts (where applicable) as per extant Govt. orders.

Relaxation in upper age limit to OBC (NCL)/ SC/ ST candidates shall be provided against reserved posts as per extant Govt. orders.

RITES regular/contract employees fulfilling the educational qualification and experience criteria shall be given age relaxation of 5 years, over and above the upper age limit indicated above.

PWD candidates suffering from not less than 40% of the relevant disability shall only be eligible for the benefit of PWD. Such PWD candidates shall be eligible for relaxation of 10 years in upper age limit.

PWD candidates will have to meet the Physical Requirements and Functional Classifications which have been identified for the post as under:

Categories for which identified	Functional Classification	Physical Requirements
Locomotor disability	OA, OL, Leprosy Cured, Acid Attack Victims	S, ST, BN, W, SE, MF, C, RW, KC, CL, JU, H
Hearing Impairment	HH	

Persons with Disabilities belonging to the category/ categories for which the post is identified (as indicated in Table above) can also apply even if no vacancies are specifically reserved for them. Such candidates will be considered for selection for appointment to the post by general standard of merit.

Functional Classification:

Physical Requirements:

Code	Functions
OH	Orthopaedically Handicapped
VH	Visually Handicapped
HH	Hard of Hearing
OL	One leg
OA	One arm
BA	Both Arms
BH	Both Hands
MW	Muscular Weakness
OAL	One arm one leg
BLA	Both Legs and Arms
BLOA	Both Legs one Arm
LV	Low Vision
B	Blind
PD	Partially Deaf
FD	Fully Deaf
BL	Both legs
D	Dwarfism
CP	Cerebral Palsy
LC	Leprosy Cured
AAV	Acid Attack Victims
MD	Multiple Disabilities

Code	Physical Requirements
S	Sitting
ST	Standing
W	Walking
SE	Seeing
H	Hearing/ Speaking
RW	Reading and Writing
C	Communication
MF	Manipulation by fingers
PP	Pulling & Pushing
L	Lifting
KC	Kneeling & Crouching
BN	Bending
M	Movement
JU	Jumping
CL	Climbing

The above lists are subject to revision.

#### Nature & Period of Engagement

The appointment will be initially on probation for a period of one year.

Selected candidates shall be liable for posting to any place in India as per requirements of the Company.

Candidates will be required to clear the screening test for confirmation of their services at the end of the probation period. Those who fail to qualify in the screening test, their probation period may be extended, and further action taken in accordance with the policy of the Company.

Candidates may also note that no application of an employee would be forwarded for jobs outside until he/ she completes 2 years of service in the Company.

### Remuneration

The pay would be fixed at the minimum of the scale. Candidates from Government Departments/ PSUs are eligible for protection of their Basic Pay in accordance with the policy of the Company. In addition to Basic Pay candidates would be paid DA, Fixed/variable allowances as applicable to the scale, Performance Related Pay, Medical facilities, HRA/Lease accommodation, attractive superannuation package consisting of contribution to PF, Gratuity as per Gratuity Act and Post-Retirement Medical Scheme. Other benefits would be as under:

- a) Leaves as per leave rules
  - b) Maternity Leave/ Paternity Leave
  - c) Medical facility.
  - d) Group Insurance.
  - e) Leave Encashment.
- As per company rules applicable to Regular employees.

The approximate emoluments at the minimum of the pay-scale is ₹ 13.60 LPA.

**Remuneration mentioned above is only indicative. Actual remuneration shall depend upon place of posting and other terms & conditions of appointment.**

### Fees

The candidates will have to deposit the under mentioned amount of fees during online application:

Category	Fee
General/OBC Candidates	Rs. 600/- plus Taxes as applicable
EWS/ SC/ST/ PWD Candidates	Rs. 300/- plus Taxes as applicable

For any difficulty/ queries regarding fee payment, candidates may contact on following only:

Helpdesk No: 011 – 33557000, Extension Code - 13221

Helpdesk e-mail id: pghelpdesk@hdfcbank.com

**Note:**

- a) Candidates should note that the fee submitted through any other mode except the mode specified, will not be accepted by RITES and such applications will be treated as without fee and will be summarily rejected.
- b) Persons with disabilities are given concession in the fee provided they are otherwise eligible for appointment. A PWDs candidate claiming age relaxation/fee concession will be required to submit along with their Detailed Application Form, certified copy of the PWD certificate as per latest GOI format.

### How to Apply

1. **Before applying candidates should ensure that they satisfy the necessary conditions and requirements of the position.**
2. Interested candidates fulfilling the above laid down eligibility criteria are required to apply online in the registration format available in the Career Section of RITES website, <http://www.rites.com>.
3. While submitting the online application; the system would generate 'Registration No.' on top of online form filled up by the candidate. Note down this "Registration No." and quote it for all further communication with RITES Ltd.
4. While filling up the required details, candidates are advised to carefully and correctly fill the details of "Identity Proof". Candidates are also advised to note the same and ensure the availability of the same Identity Proof as it will be required to be produced in original at later stages of selection (if called).
5. **After filling up the required details under the "Fill/ Modify Application Form", click on "Make payment". The payment details show the amount to be paid to the bank based on your category.**

**Applications without successful fee payment shall be treated as incomplete and shall be summarily rejected.**

6. A copy of this online **APPLICATION FORM** containing the registration number is to be printed, signed, and furnished at the time of interview (If Called), along with **SELF-ATTESTED SCANNED COPIES** of the following documents in the given order only (from top to bottom):
  - a. 2 recent passport size colour photographs
  - b. High School certificate for proof of Date of Birth
  - c. Certificates of Academic & Professional qualifications and statements of marks of all the qualifications for all semesters/years (Xth, XIIth, Diploma/ Graduation/ Post-Graduation as applicable)
  - d. EWS/ SC/ST/OBC Certificate in the prescribed format by Govt. of India (if applicable)
  - e. Proof of Identity & Address (Passport, Voter ID, Driving Licence, Aadhaar Card etc)
  - f. PAN Card
  - g. Proof of different periods of experience as claimed in the Application Form (if applicable)
  - h. Any other document in support of your candidature
  - i. PWD Certificate as per latest format (if applicable).
7. Please attach copies of experience certificates from your previous employment in respect of claims made by you in your application. In respect of current employment, **experience certificate/ joining letter along with last months' salary slips, or, Form 16 and other documents** which clearly prove your continuity in the job are to be attached. In case your claim is not established from the proofs submitted by you; your application is liable to be rejected. Please check your claims and certificates submitted by you carefully. Incomplete application, or, insufficient proof would entail rejection of your application. No claims would be entertained at a later stage.
8. **For proof of CTC/ salary, candidates shall have to submit a copy of their last Form No. 16/ Earning Card/ salary slip/ Appraisal letter/ any other suitable document.**
9. Community certificate (SC/ST/OBC) should be in the format prescribed by Government of India only. OBC candidates included in the Central List with certificate not more than 12 months old (with clear mention of candidate not belonging to "Creamy Layer") in the GOI prescribed format only will be considered for the posts reserved for OBC. EWS certificate should also be as per Gov. of India format

**10. Hard copies of documents are not to be sent to this office through post/ courier. Documents are to be uploaded on RITES Website through portal only.**

11. The candidates are also advised to keep a copy of Application Form submitted with them and to carry the same at the time of the Interview (if called).
12. **Candidates who have registered online but whose application along with aforesaid documents is not received online on or before the due date, their candidature may not be considered.** The company reserves the right to consider only such applications which are received online by the prescribed date.
13. Applications received after the last date of receipt of Application Form and documents shall be rejected. RITES Ltd. does not bear any responsibility for any delay in post/courier for any reason whatsoever.
14. The **original testimonials/documents along with one self-attested copy** will have to be produced by the candidate(s) at the time of interview (if called).
15. Departmental Candidates of RITES are required to apply online and submit their hard copy through proper channel.
16. Candidates working in Government Departments/ PSU are required to apply through proper channel. The candidates who apply directly would have to bring NOC from their employer at the time of Interview (if called) so as to consider their claims under technical resignation category.
17. Candidates not fulfilling the minimum laid down criteria advertised with respect to educational qualifications, age, and experience for selection to the respective post, would not be able to register online.
18. Candidates should submit only one application for one vacancy and application once submitted cannot be altered. A valid e-mail ID is essential for submission of the online application. RITES will not be responsible for bouncing of any e-mail sent to the candidates. However, candidates can apply for any number of vacancies.
19. The candidates must submit all the details pertaining to his candidature viz. personal details, educational qualification details, experience details, category etc. Suppression, in this regard, if any, detected on a future date shall render the candidature liable for forfeiture.
20. If any claim made by a candidate is found to be incorrect, his/her candidature shall be summarily rejected.

#### Venue & Time

S. No.	Selection Round	Venue & Date
1	Written Test	6 different locations across India* (Exact address shall be communicated to the candidates later)
2	Interview (Subject to performance in Written Test)	Venue for the Interview shall be communicated to shortlisted candidates

Candidates are required to give two preferences for their choice of center for the Written Test at the time of online application. Although efforts shall be made to allot a center of choice to the candidates, however RITES reserves the right to allot to a candidate a center which was not indicated as his preference.

Test Centers for Written Test\*:

S. No.	City
1	Delhi/Gurgaon
2	Kolkata
3	Chennai
4	Mumbai
5	Hyderabad
6	Nagpur

**\*All centers except Delhi/ Gurgaon are tentative and will depend on number of candidates and discretion of RITES.**

Exact Date, time and details of venue of the selection shall be communicated to shortlisted candidates.

### Syllabus for Written Test

#### Applied Mechanics and Design

**Engineering Mechanics:** Free-body diagrams and equilibrium; trusses and frames; virtual work; kinematics and dynamics of particles and of rigid bodies in plane motion; impulse and momentum (linear and angular) and energy formulations, collisions.

**Mechanics of Materials:** Stress and strain, elastic constants, Poisson's ratio; Mohr's circle for plane stress and plane strain; thin cylinders; shear force and bending moment diagrams; bending and shear stresses; deflection of beams; torsion of circular shafts; Euler's theory of columns; energy methods; thermal stresses; strain gauges and rosettes; testing of materials with universal testing machine; testing of hardness and impact strength.

**Theory of Machines:** Displacement, velocity and acceleration analysis of plane mechanisms; dynamic analysis of linkages; cams; gears and gear trains; flywheels and governors; balancing of reciprocating and rotating masses; gyroscope.

**Vibrations:** Free and forced vibration of single degree of freedom systems, effect of damping; vibration isolation; resonance; critical speeds of shafts.

**Machine Design:** Design for static and dynamic loading; failure theories; fatigue strength and the S-N diagram; principles of the design of machine elements such as bolted, riveted and welded joints; shafts, gears, rolling and sliding contact bearings, brakes and clutches, springs.

#### Fluid Mechanics and Thermal Sciences

**Fluid Mechanics:** Fluid properties; fluid statics, manometry, buoyancy, forces on submerged bodies, stability of floating bodies; control-volume analysis of mass, momentum and energy; fluid acceleration; differential equations of continuity and momentum; Bernoulli's equation; dimensional analysis; viscous flow of incompressible fluids, boundary layer, elementary turbulent flow, flow through pipes, head losses in pipes, bends and fittings.

**Heat-Transfer:** Modes of heat transfer; one dimensional heat conduction, resistance concept and electrical analogy, heat transfer through fins; unsteady heat conduction, lumped parameter system, Heisler's charts; thermal boundary layer, dimensionless parameters in free and forced convective heat transfer, heat transfer correlations for flow over flat plates and through pipes, effect of turbulence; heat exchanger performance, LMTD and NTU methods; radiative

heat transfer, Stefan-Boltzmann law, Wien's displacement law, black and grey surfaces, view factors, radiation network analysis.

**Thermodynamics:** Thermodynamic systems and processes; properties of pure substances, behaviour of ideal and real gases; zeroth and first laws of thermodynamics, calculation of work and heat in various processes; second law of thermodynamics; thermodynamic property charts and tables, availability and irreversibility; thermodynamic relations.

**Applications:** *Power Engineering:* Air and gas compressors; vapour and gas power cycles, concepts of regeneration and reheat. *I.C. Engines:* Air-standard Otto, Diesel and dual cycles. *Refrigeration and air-conditioning:* Vapour and gas refrigeration and heat pump cycles; properties of moist air, psychrometric chart, basic psychrometric processes. *Turbomachinery:* Impulse and reaction principles, velocity diagrams, Pelton-wheel, Francis and Kaplan turbines.

## **Materials, Manufacturing and Industrial Engineering**

**Engineering Materials:** Structure and properties of engineering materials, phase diagrams, heat treatment, stress-strain diagrams for engineering materials.

Elasticity, plasticity, fracture and fracture toughness, fatigue, solid solutions, equilibrium diagram, thermal treatment, isothermal transformation of austenite, TTT and CCT diagrams Cooling, curves, austempering, martempering, factors affecting hardenability, function of alloying elements in steel (ferrite former, austenite former, carbide former, stabilizer)

**Casting, Forming and Joining Processes:** Different types of castings, design of patterns, moulds and cores; solidification and cooling; riser and gating design. Plastic deformation and yield criteria; fundamentals of hot and cold working processes; load estimation for bulk (forging, rolling, extrusion, drawing) and sheet (shearing, deep drawing, bending) metal forming processes; principles of powder metallurgy. Principles of welding, brazing, soldering and adhesive bonding.

**Machining and Machine Tool Operations:** Mechanics of machining; basic machine tools; single and multi-point cutting tools, tool geometry and materials, tool life and wear; economics of machining; principles of non-traditional machining processes; principles of work holding, design of jigs and fixtures.

**Metrology and Inspection:** Limits, fits and tolerances; linear and angular measurements; comparators; gauge design; interferometry; form and finish measurement; alignment and testing methods; tolerance analysis in manufacturing and assembly.

**Computer Integrated Manufacturing:** Basic concepts of CAD/CAM and their integration tools.

**Production Planning and Control:** Forecasting models, aggregate production planning, scheduling, materials requirement planning.

**Inventory Control:** Deterministic models; safety stock inventory control systems.

**Operations Research:** Linear programming, simplex method, transportation, assignment, network flow models, simple queuing models, PERT and CPM.

## **Manufacturing Processes**

Metal casting – patterns and moulds including mould design involving feeding, gating and risering, melting, casting practices in sand casting, permanent mould casting, investment casting and shell moulding, casting defects and repair; Hot, warm and cold working of metals; Metal forming – fundamentals of metal forming processes of rolling, forging, extrusion, wire drawing and sheet metal forming, defects in



forming; Metal joining – soldering, brazing and welding, common welding processes of shielded metal arc welding, gas metal arc welding, gas tungsten arc welding and submerged arc welding; Welding metallurgy, problems associated with welding of steels and aluminium alloys, defects in welded joints; Powder metallurgy – production of powders, compaction and sintering; NDT using dye-penetrant, ultrasonic, radiography, eddy current, acoustic emission and magnetic particle methods.

#### **Testing of material:**

Nondestructive testing: Ultrasonic testing, radiography, magnetic particle testing, eddy current testing, dye penetration testing.

Physical testing: Tensile test, % elongation, % reduction in area, hardness (Brinell, Rockwell, Vickers), impact test (Izod, Charpy), bend test, shear test, fatigue test, creep test.

Chemical testing ferrous and non ferrous metals

Metallography; micro and macro examination Testing of paints, rubber, textiles, wood, and plastics.

#### **Material Science :**

Thermal, chemical, electrical, magnetic and mechanical properties of material. Structure of metals (arrangement of atoms, crystalline & amorphous structure, crystal imperfections), solid solution, diffusion in metals and alloys, transformation during cooling of metals and alloys, deformation and metal, impact of cold and hot working on metal, corrosion, forms, causes and prevention.

**Heat transfer**, conduction, convection, radiation and heat exchangers.

**Air compressors**, types of air compressors, compressors performance. Reciprocating and rotary air compressors, air receivers, intercoolers and after coolers.

**Air conditioning**, air conditioning units and plants, air conditioner types, selection of plants.

#### **General Instructions**

1. Management reserves the right to cancel/ restrict/ enlarge/ modify/ alter the selection/ recruitment process at any stage, without issuing any further notice or assigning any reason thereafter.
2. The number of vacancies may vary.
3. Departmental candidates of RITES and candidates working in Government Departments/ PSU shall be allowed to join RITES only after being properly relieved from their parent organization.
4. Before applying, the Candidates must satisfy themselves about their eligibility for the post applied for.
5. In case it is detected at any stage of recruitment that a candidate does not fulfill the eligibility norms and/or that he/she has furnished any incorrect/false information or has suppressed any material fact (s), his/her candidature is liable for cancellation. If any of these shortcomings is/are detected even after appointment, his/her services are liable to be terminated.

6. Any corrigendum/addendum to this advertisement will be displayed only on the Company's website [www.rites.com](http://www.rites.com). Therefore, applicants are advised to keep checking the Company's website for any update.
7. The period of training/internship shall not be counted towards post qualification experience.
8. Legal jurisdiction will be Delhi in case of any dispute
9. No train/bus fare / TA / DA shall be payable.
10. In case a candidate is found suitable for a lower post than for which he/she has applied, he/she shall only be considered for the post for which he/she has been found suitable by the selection committee.

#### Communication with RITES

Any information regarding this recruitment process would be made available on the e-mail address provided by the candidate at the time of registration and/or shall be uploaded on RITES website. Candidates are advised to periodically check the Career section of RITES website for further updates.

Candidates are encouraged to go through the detailed advertisement and read the "Frequently Asked Questions (FAQs)" uploaded on RITES website under Career section to solve their queries.

**Queries if remaining should be sent to [rectt@rites.com](mailto:rectt@rites.com) only and contain the following particulars:**

- i. VC No.
- ii. REGISTRATION/ROLL NO.
- iii. NAME OF CANDIDATE IN FULL AND IN BLOCK LETTERS.
- iv. Valid email address as given in the application

Communications not containing above particulars shall NOT BE ATTENDED TO.

Any query/ issue should be brought to notice of RITES well in advance of the due date. RITES will not be responsible for non-submission of application due to issues brought to notice at the last moment.

**Queries related to information already provided in the advertisement shall not be attended to.**

#### Important Dates

S. No.	Particular	Date
1	Commencement of submission of online application and online payment of fees	20.06.2023
2	Last date of submission of online application and online payment of fees	15.07.2023
4	Date of selection	To be notified later