

Recruitment of engineering professionals on regular basis

RITES Ltd., a Nav 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					
		UR	EWS	OBC (NCL)	SC	ST	Total
19/24	Assistant Manager (Geo Technical)	1	-	-	-	-	1
20/24	Assistant Manager (Structural Engineering)	3	-	-	-	1	4**
21/24	Assistant Manager (Urban Engineering)	1	-	-	1	1	3*
22/24	Assistant Manager (Electrical)	-	-	-	1	-	1*
23/24	Assistant Manager (S&T)	1	-	-	-	-	1*
24/24	Assistant Manager (Economics & Statistics)	1	-	-	-	-	1
25/24	Assistant Manager (Civil)	1	-	-	-	-	1*

* 1 post reserved for PwD category on horizontal basis

** 2 posts reserved for PwD category on horizontal basis

Category wise and post wise details of 6 vacancies reserved for Persons with Benchmark Disabilities (PwBDs) are 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
20/24	Assistant Manager (Structural Engineering)	-	2	-	-	2
21/24	Assistant Manager (Urban Engineering)	-	-	-	1	1
22/24	Assistant Manager (Electrical)	-	1	-	-	1
23/24	Assistant Manager (S&T)	-	-	1	-	1
25/24	Assistant Manager (Civil)	-	1	-	-	1

All vacancies earmarked for PwBD categories detailed above have been carried forward from unfilled vacancies advertised in 2023. In current recruitment process, priority order for issuance of offers will be as detailed below:

First Priority: Candidates belonging to disability type as detailed in above table
Second Priority: Candidates belonging to any disability type which meets job requirements for respective positions (Stated in Relaxations & Concessions section)
Third Priority: In the absence of any suitable candidate belonging to PwD category, will be filled by non-PwD candidates.

Age Limit

Maximum Age
32 Years

Note: Age, experience, and all other eligibility criteria shall be reckoned as on the last date of submission of the application (cut-off date)

Minimum Qualifications & Experience

VC No	Designation & Pay Scale (Rs.)	Minimum Qualification*	Minimum post - qualification experience
19/24	Assistant Manager (Geo Technical) (Rs. 40, 000 –1, 40, 000)	Full time Bachelor's Degree in Civil Engineering AND Master's Degree in Geo-technical engineering/ Rock Engineering & underground structure/Soil Mechanics & Foundation Engineering	2 Years
<u>Experience is defined as under:</u>			
Candidate must have minimum 2 years of post-qualification experience in the field of Ground Investigation Works, Geological borehole logging, geotechnical investigation and in situ geotechnical testing including analysis of data and preparation of Geo-Technical/ Geological & interpretative reports for bridges & other large infrastructure projects.			
VC No	Designation & Pay Scale (Rs.)	Minimum Qualification*	Minimum post - qualification experience
20/24	Assistant Manager (Structural Engineering) (Rs. 40, 000 –1, 40, 000)	Full time Bachelor's Degree in Civil Engineering AND Master's Degree in Structural Engineering	2 Years
<u>Experience is defined as under:</u>			
Candidate must have minimum 2 years of post-qualification experience in the field of structural designs and drawings for concrete/ steel works, Rail-Road over bridges (ROBs), pre-stressed concrete bridges, balanced cantilever bridges, steel bridges, foot-over bridges (FOB), elevated segmental structures/ continuous bridges, metro structures i.e. Stations, viaducts, tunnels etc.			
VC No	Designation & Pay Scale (Rs.)	Minimum Qualification*	Minimum post - qualification experience
21/24	Assistant Manager (Urban Engineering) (Rs. 40, 000 –1, 40, 000)	Full time Bachelors' degree in Environmental Engineering / Full time Bachelor's degree in any branch of Engineering with Master's degree in Environmental Engineering/ Environmental	2 Years

		Science/Environmental Management / Environmental Planning/Sustainability	
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Experience is defined as under:

Candidates must have minimum 2 years of post qualification experience in leading and/ or monitoring/ supervising construction stage Implementation of EIA and EMP requirements of large infrastructure projects.

VC No	Designation & Pay Scale (Rs.)	Minimum Qualification*	Minimum post - qualification experience
22/24	Assistant Manager (Electrical) (Rs. 40, 000 –1, 40, 000)	Full time Bachelor's degree in Electrical / Electronics /Power Supply/ Instrumentation and Control/ Industrial Electronics/Electronics & Instrumentation/Applied Electronics/ Digital Electronics/Power Electronics Engineering or any of the above combination in part or wholes	2 Years

Experience is defined as under:

Candidates should have post qualification experience of minimum 2 years in one or more of Electrical engineering fields such as railway electrification /general electrical installations / site supervision/ power distribution/ electrical machines and construction/ maintenance of electrical equipment in buildings.

VC No	Designation & Pay Scale (Rs.)	Minimum Qualification*	Minimum post - qualification experience
23/24	Assistant Manager (S&T) (Rs. 40, 000 –1, 40, 000)	Full time Bachelor's Degree in Electronics / Electronics & Telecommunication / Electronics & Communication / Electronics & Electrical / Electronics & Instrumentation Engineering /Computer Science/ IT/ Computer Engineering or any of the above combination in part or whole	2 Years

Experience is defined as under:

Candidates should have total post qualification experience of minimum 2 years of working in Signal & Telecommunication construction projects dealing with installation / testing and commissioning of SSI/ EI/ RRI/ PI of Indoor and Outdoor of Signal & Telecommunication gears for Indian Railways, Metros, Railway sidings/ PSU Railway sidings/ Private sector railway sidings.

VC No	Designation & Pay Scale (Rs.)	Minimum Qualification*	Minimum post - qualification experience
24/24	Assistant Manager (Economics & Statistics) (Rs. 40, 000 –1, 40, 000)	Full time Bachelor's Degree in Economics /Business Economics/Statistics/Operational Research/ Transport Planning And MBA with specialization in Finance	2 Years

Experience is defined as under:

Candidate must have minimum 2 years of post-qualification experience with Understanding of different concepts of economics with respect to transport systems, requirements of Mass/ Rail Transit Studies, Transport Planning,

Economic evaluation and financial structuring of mass transport projects			
Awareness of best practices in and around about urban & regional transport planning.			
Versed with suitable IT, GIS, database handling and analytical skills using computer software's.			
VC No	Designation & Pay Scale (Rs.)	Minimum Qualification*	Minimum post - qualification experience
25/24	Assistant Manager (Civil) (Rs. 40, 000 –1, 40, 000)	Full time Bachelor's Degree in Civil Engineering	2 Years
Experience is defined as under:			
Candidates should have post-qualification experience of minimum two years in the field of Construction Supervision.			

*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.

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

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:

Written Test	-	60%
Interview	-	40%
(Technical & Professional proficiency - 30 %; 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.

Candidates will be called for interview in the ratio of 1:6 to the number of vacancies.

There will be 125 objective type questions 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 an 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:

Post	Categories for which identified	Functional Classification	Physical Requirements
Assistant Manager (Civil)/Structural Engineering/SHE Expert/Geology/Urban Engineering/Economics & Statistics	Locomotor disability	OA, OL, Leprosy Cured, Acid Attack Victims	S, ST, BN, W, SE, MF, C, RW, KC, CL, JU, H
	Hearing Impairment	HH	

Post	Category for which identified	Functional Classification	Physical Requirements
Assistant Manager (S&T)	Locomotor disability	OA, OL, Leprosy Cured, Acid Attack Victims	S, ST, BN, W, SE, MF, C, R, W & RW

Post	Category for which identified	Functional Classification	Physical Requirements
Assistant Manager (Electrical)	Locomotor disability	OA, OL, Leprosy Cured, Acid Attack Victims	S, ST, BN, W, SE, MF, C, RW, KC, CL, JU, H

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 ₹ 14.74 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

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).

No documents are to be submitted at present. Candidates may be asked to submit relevant documents at a later stage if so required.

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	Delhi-NCR
2	Interview (Subject to performance in Written Test)	Venue for the Interview shall be communicated to shortlisted candidates

Syllabus for Written Test

Assistant Manager (Geo Technical)

Description	
Soil Mechanics	Three-phase system and phase relationships, index properties; Unified and Indian standard soil classification system
	Permeability - one dimensional flow, Seepage through soils - two - dimensional flow, flow nets, uplift pressure, piping, capillarity, seepage force
	Principle of effective stress and quicksand condition
	Compaction of soils; One- dimensional consolidation, time rate of consolidation
	Shear Strength, Mohr's circle, effective and total shear strength parameters
	Stress-Strain characteristics of clays and sand; Stress paths
Foundation Engineering	Sub-surface investigations - Drilling bore holes, sampling, plate load test, standard penetration and cone penetration tests
	Earth pressure theories - Rankine and Coulomb; Stability of slopes - Finite and infinite slopes, Bishop's method
	Stress distribution in soils - Boussinesq's theory; Pressure bulbs, Shallow foundations - Terzaghi's and Meyerhoff's bearing capacity theories, effect of water table
	Combined footing and raft foundation; Contact pressure
	Settlement analysis in sands and clays
	Deep foundations - dynamic and static formulae, Axial load capacity of piles in sands and clays, pile load test, pile under lateral loading, pile group efficiency, negative skin friction
Rock Engineering	Physio-mechanical properties of rocks; laboratory and field tests, Rock mass classification, Initial stresses in rocks and their measurement
	Stress-strain behaviour, Failure criteria for intact rock and rock masses, Analysis and design of underground openings, Elastic and elasto-plastic approach, Stress concentration for different shapes of opening, Planes of weakness in rocks, rock fracture and joints. Stability of rock slopes
	Modes of failure, Foundations on rock, Rock support and reinforcement, tunnel supports. Rock Blasting, Numerical modelling of rocks, rock masses and rock structures. Instrumentation and monitoring
Soil Dynamics	Study of vibrations; Mathematical modelling; Sources of vibration; Distinction between static and dynamic problems; Nature of different types of dynamic loads; Significance of soil-structure interaction; Basic principles of soil dynamics - An Introduction; Fundamentals of vibration theory
Ground	Engineering properties of soft, weak and compressible geomaterials; Principles of treatment; Methods of soil improvement-lime stabilization and injection

Improvement Techniques	Preloading and vertical Drains; Dynamic Consolidation; Granular piles; Soil nailing; Anchors; Deep mixing and Grouting; Electro-osmosis
Geosynthetics & Reinforced Soil Structures	Different varieties of geosynthetics and their applications; Types of polymers and manufacture of geosynthetics; Testing of geosynthetic properties; Strength mechanisms of reinforced soil.
	Design of foundation beds using geosynthetics; Application of geosynthetics in flexible pavements Et design using geosynthetics; Design and construction of reinforced soil retaining walls

Assistant Manager (Structural Engineering)

Description	
Structural Analysis	<p>Beam:- Types of Supports, Shear Force and Bending Moment, Shear Force and Bending Moment Diagrams, Graphical Method of Plotting S.F. and B.M. Diagrams.</p> <p>Beams: - Deflections by Moment Area Method and Conjugate Beam Method, Slope and Deflection for Cantilever and Simply Supported Beam, Analysis of Fixed Beam and Continuous Beams.</p> <p>Column analysis with different support condition, column carrying eccentric load, laterally loaded column, effective height, short column, slender column.</p> <p>Deflection of framed structures Moving loads on beam/frames, influence lines for bending moment and shear force in members of framed structure. Moment distribution and slope deflection methods</p>
Design of Reinforced Concrete Structures	<p>Method of Design - Working Stress Method, Ultimate Load Method, Limit State Method</p> <p>Singly and Doubly Reinforced Beams and slabs, columns Shear Stress, Diagonal Tension, Shear Reinforcement, Development Length, Anchorage Bond, Flexural Bond</p>
Design of Steel Structures	<p>Stress strain curve for mild steel, rolled steel section, loads, permissible stresses, working stresses, factor of safety minimum thickness of structural members, Design methods.</p> <p>Compression Members-Effective length, Slenderness ratio, Column design, Types of sections, assumptions, Design of Axially loaded compression members</p> <p>Tension Members-Net sectional area, Permissible stress, Design of axially loaded tension member</p> <p>Design of Plate girder - bending, shear, economical depth. Welded joints, types of welds, design of fillet weld, design of butt weld.</p>
PRESTRESSED CONCRETE STRUCTURES	<p>Specification of materials, methods of prestressing, losses, analysis, and design of members for moment and shear, stresses in anchorage zones of pretensioned and post tensioned members, design of end block, prestressed concrete compression members, partial prestressing, composite construction with prestressed concrete and reinforced concrete, two-way prestressing, Short term deflections of uncracked members, Prediction of long- term deflections, Review of Indian code.</p>

DESIGN OF BRIDGES	Introduction and Type of Bridges, Introduction to bridge codes. Site investigation and planning- Factors affecting scour and its evaluation. Analysis and Design of Bridge foundations - open, pile, and well. Analysis and Design of Piers, abutments, and approach structures; Superstructure - analysis and design of right, skew, and curved slabs. Steel, RCC and PSC Girder bridges - types, load distribution, design. Steel - Concrete composite bridges: load distribution, design philosophy, shear connectors with relevant Indian Codes such as IS, IRC and IRS etc. Detailing with relevant Indian Codes. Introduction to long span bridges - cantilever, arch, cable stayed and suspension bridges, etc.
STRUCTURAL DYNAMICS ft EARTHQUAKE ENGINEERING	Introduction - Single and multi-degree freedom systems, undamped and damped systems, numerical integration scheme, modal analysis for undamped and damped systems. Characteristics of earthquake, Earthquake response of structures, Concept of earthquake resistant design. Codal provision for design of buildings, masonry structures and bridges etc, liquefaction, Detailing earthquake resistant structures with relevant Indian Codes.
DESIGN OF TALL AND INDUSTRIAL STRUCTURES	Design philosophy, loading, and materials and design mixes. Loading and Movement: Gravity loading: Dead and live load, methods of live load reduction, Impact, Gravity loading, Construction loads. Wind loading: static and dynamic approach. Earthquake loading: Equivalent lateral force, modal analysis, combinations of loading, Limit state design. Analysis and Design: Modelling for approximate analysis, accurate analysis and reduction techniques, analysis of building as total structural system considering overall integrity and major subsystem interaction, analysis for member forces; drift and twist, Yield line method of design of slabs. Design of flat slabs and Design of continuous beams with redistribution of moments. Analysis of industrial building for Gravity and Wind load. Analysis and design of framing components namely, girders, trusses, gable frames. Analysis and design of gantry column (stepped column / column with bracket), purlins, girts, bracings including all connections. Analysis and Design of foundations - Isolated, Raft and Pile. Concept of Pre- engineered buildings.
REPAIR AND REHABILITATION OF STRUCTURES	Introduction, Cause of deterioration of concrete structures, Diagnostic methods ft analysis, preliminary investigations, experimental investigations using NOT , load testing, corrosion mapping, core drilling and other instrumental methods, Quality assurance for concrete construction, as built concrete properties strength, permeability, thermal properties, and cracking. Assessment procedure for evaluating a damaged structure, causes of deterioration, testing techniques

Assistant Manager (Urban Engineering)

Description	
Environmental Studies	Ecosystems, Natural Resources, Biodiversity and its conservations

Environmental Pollution	Causes, effects and control measures of Air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, Solid waste management, composting and vermiculture, Urban and industrial wastes, recycling and re-use.
Environmental Acts and International Conventions	<ul style="list-style-type: none"> • Water (Prevention and Control of pollution) act, Air (Prevention and Control of pollution) act, Environmental protection act, Wild life protection act, Forest Conservation act • Stockholm Conference, Earth Summit, Kyoto Protocol, Paris Agreement and COP meetings
Environmental Impact Assessment	<ul style="list-style-type: none"> • Screening, IEE and EIA • Need of EIA and Type of EIAs • EIA process and project cycle • Acts and Legislations • EIA Components and process • EIA Methodology • Baseline, Environmental Impacts, Management Plans, Monitoring plans
Air Pollution	<ul style="list-style-type: none"> • Emission and Dispersion • Ambient Air quality standards for residential, commercial, industrial and sensitive areas, • Photochemical reactions • Greenhouse gases and effects • Global Warming • Decarbonization/NetZero
Solid Waste Management	<ul style="list-style-type: none"> • Collection, segregation, transportation, treatment and disposal techniques • Population forecast; Estimation of Solid Waste • Selection of Dumping site • Concept of 4 "R"

Water Supply Engineering	<ul style="list-style-type: none"> • Water demands: Factors affecting water demands, Population forecast, • Identification of Water sources • Water treatment Methods: treatment Methodology indicating various flow diagrams as per the characteristics of raw water, slow sand filter, rapid sand filter and disinfections • Transmission of water: Conveyance mains, water hammer, air valves • Water supply networks: Residual pressure, water hammer, air valves, staging height, • Selection of pipe materials and valves
Sewerage System And Sewer System	<ul style="list-style-type: none"> • Estimation of waste water flow: source and per capita waste water, Peak factor • Sewerage network: design concept • Sewage characteristics and various treatment methods and flow diagrams • Sewage treatment methods: activated sludge process, oxidation pond, oxidation ditch and USBR • Sludge drying beds • Disposal of Treated Water: In-Land disposal, stream/river
Storm Water Design	<ul style="list-style-type: none"> • Estimation of Runoff • Infiltration: Impervious factors, • Peak Factors • Type of Drains: Rectangular, Trapezoidal and Circular • Outfall Points

• **Syllabus for the post of Assistant Manager (Electrical)**

Unit-1 Electric Circuits and Fields :

Network graph, KCL, KVL, node and mesh analysis, transient response of Ac and Dc networks, sinusoidal steady-state analysis, resonance, basic filter concept, ideal current and voltage sources, Thevenin's Norton's and Superposition and Maximum Power Transfer theorems, two-port networks, three phase circuits, Gauss Theorem, electric field and potential due to point, line, plane and spherical charge distributions, Ampere's and Biot-Savart's laws, inductance, dielectrics, capacitance.

Unit-2 Signals and Systems:

Representation of continuous and discrete-time signals, shifting and scaling operation, linear, time-invariant and causal systems, Fourier series representation of continuous periodic signals, sampling theorem, Fourier, Laplace and Z transforms.

Unit-3 Electrical Machines:

Single phase transformer – equivalent circuit, phasor diagram, tests, regulation and efficiency, three phase transformers – connections, parallel operation, auto-transformer, energy conversion principles; DC

machines – types, windings, generator characteristics, armature reaction and commutation, starting and speed control of motors, three phase induction motors – principles, types performance characteristics, starting and speed control, single phase induction motors, synchronous machines – performance, regulation and parallel operation of generators, motor starting characteristics and applications; servo and stepper motors.

Unit-4 Power Systems:

Basic power generation concepts; transmission line models and performance, cable performance, insulation, corona and radio interference, distribution systems, per-unit quantities, bus impedance and admittance matrices, load flow, voltage control, power factor correction, economic operation, symmetrical components, fault analysis, principles of over-current, differential and distance protection, solid state relays and digital protection, circuit breakers, system stability concepts, swing curves and equal area criterion, HVDC transmission and FACTS concepts.

Unit-5 Control Systems:

Principles of feedback, transfer function, block diagrams; steady-state errors, Routh and Niquist techniques, Bode plots, root loci, lag, lead and lead-lag compensation, state space model, state transition matrix, controllability and observability.

Unit-6 Electrical and Electronic Measurements:

Bridges and potentiometers, PMMC, moving iron, dynamometer and induction type instruments, measurement of voltage, current, power, energy and power factor, instrument transformers, digital voltmeters and multimeters, phase, time and frequency measurement, Q-meters, oscilloscopes, potentiometric recorders, error analysis.

Unit-7 Analog and Digital Electronics:

Characteristics of diodes, BJT, FET, amplifiers – biasing, equivalent circuit and frequency response, oscillators and feedback amplifiers, operational amplifiers – characteristics and applications, simple active filters, VCOs and timers, combinational and sequential logic circuits, multiplexer, Schmitt trigger, multi-vibrators, sample and hold circuits, A/D and D/A converters, 8-bit microprocessor basics, architecture, programming and interfacing.

Unit-8 Power Electronics and Drives:

Semiconductor power diodes, transistors, thyristors, triacs, GTOs, MOSFETs and IGBTs – static characteristics and principles of operation, triggering circuits, phase control rectifiers, bridge converters – fully controlled and half controlled, principles of choppers and inverters, basis concepts of adjustable speed Dc and Ac drives.

Unit-9 Application/utilization of Electrical Energy

Properties of Electrical System: Characteristics/properties of electrical systems/equipment/devices used in institutional building/commercial complexes/residential complexes/workshops/engineering industry etc. including General Electrification, Area Lighting, Sub-Station, DG Set, Solar system, Air-conditioning, Lifts, fire Alarm, Data Networking, EPBX, CCTV, PA System, Airport Runway lighting works etc.

Planning & Design of Electrical Works – Internal & External Works. Estimation, installation, testing and commissioning of such works.

Inspection and testing of electrical equipment, components, fittings, types of tests, sampling of components, test methods for different electrical equipment, components, cables, wires, insulators etc.

- **Syllabus for the post of Assistant Manager (S&T)**

Basic Electrical & Electronics

DC Circuit
Voltage & Current sources,
Fundamentals of AC-
Average value, RMS value, form factor, crest factor, AC power and power factor, phasor representation of sinusoidal quantities. Simple series, parallel & series-parallel circuits containing R-L. R-C. R-L-C parameters, Resonance in series & parallel circuits. Star Delta transformations.

Power Supply –

Solar photovoltaic cell, primary and secondary cells, battery chargers, DG sets, voltage stabilizers, DC-DC converters, inverters, rectifiers.

Earthing and Surge protection-

Maintenance free earth, single earth, ring earth, Class A, B & C type surge protection devices. protecting against electrical surges and spikes including those caused by lightning.

Protection to staff:

Acid, fire, safety requirements, proximity, precautions in AC electrified area, tools, gloves, belts, helmets, guards, covers, live circuit working, handling electrical equipment, radio equipment, safety first manual, first aid.

Basic Electronics –

Characteristics of diodes, diode parameters, equivalent circuits, rectifiers, derivation for rectifier efficiency, ripple factor, filter circuits, power supplies. Principle of operation of transistors, Transistor Circuits and Integrated circuits.

Introduction to common measuring equipment:

Ammeter, voltmeter, clamp on meter, Cathode Ray Oscilloscope, Multimeter, frequency meter

System of Block Working
Track Circuits

Absolute Block System, APB System, Automatic Block Section

DC Track Circuits, Single and Double rail, Laying at Glued joints, importance of traction bonds, Cross Bonding, Earthing arrangement, Relay and feed end arrangement. Ballast Resistance, seasonal adjustments of DC track circuit, Excitation voltage on relay terminals of DC track circuits and preventive steps. Maintenance features of track circuits. Track relay shelf type and plug in type, its parameters, cutting in features.

Signalling & Power supply system

Signalling arrangement and power supply systems in AC electrified areas. Protection measures to the operating and maintenance staff. Earthing and its importance, Visibility of signal aspects. Double pole Triple pole lamps, signal screening, Ball token and token less block working. Mast implantation for clear visibility of signal aspects, Solar Power supply, Load calculation for PI, RRI station, IPS for typical PI/RRI/EI station.

Cables	Type of signalling cables, cable insulation resistance, Meggering of cables, Earth leakage detectors, Maintenance Free Earth Clamp meter, Cable fault route locator & Electro Magnetic Interface Shielding. Earthing of signalling cables and equipment. Steps to improve Localization of faults and repair. Laying of signalling cables. Burning of cables in AC traction areas, causes precautionary measures to prevent equipment. Steps to improve Localization of faults and repair
RRI/Panel RRI and Panel Interlocking systems.	Route Control Chart (R.C.C), Aspect Control Chart Signal Interlocking Plan (SIP)
Electrical Signalling	Point Motors, In built features, Control and Operation Circuits, Signal machines, Signal reversers, Track locking, Back locking, Indication locking, Approach and Dead approach locking etc. Lever lock and its functions. EKT/RKT and its functions, Circuit Breakers.
Modern Signalling	Basic Concepts of Electronic Interlocking, Data logger and its utility, Analog and Digital axle counters, AFTC, Electronic track circuits, IBS Systems, Block proving axle counter and LED Signals. Neal's A type Ball Tablet token instrument, Diado/HWH makes TLBI, SGE Double line block instrument (Lock and Block), Token less Push button instrument. UFSBI Block Signalling.
Block Signalling-	Diado/HWH makes Token Less Block Instrument (TLBI), SGE Double line block instrument (Lock and Block), Token less Push button instrument. Universal Failsafe Block Instrument (UFSBI)
Drawing office practice	Preparation of SIP, RCC, FPD, contact analysis, cable core age plan, cable route plan, As made (as at site) drawings. CRS application, Sighting committee report. Station working rule diagram

TELECOMMUNICATION

Land Line communications	Parameters, trenching, laying, jointing, termination of quad cables, testing, Faults, Localization and remedies in 4 quad/6quad cables, block working, LC gate communication & emergency communication, maintenance schedules and periodical tests.
Optic Fibre Communication system	OFC system, Principles of working (PDH & SDH), OFC Channel testing, Ring protection and NMS. Construction details of Fibres and OFC, OFC laying details, Splicing.
Cable	Tele cabling, characteristics of Tele cables, Cable laying, Parameters, loading coils, Condenser joints, Balancing of cables, Testing, Cable faults localization, Rectification, Annual maintenance of cables in RE & Non-RE Area.
Train Traffic Control	Control office setup at Division, different controls like TC, Dy. TC, TPC, TLC, SM's office at way side station, communication at LC gates, Emergency control communication, set up at telecom test room, earthing Lightning protection.
VHF/Satellite Mobile	25 Watts & 5 Watts VHF sets including power supply. Uses, installation, programming, testing & maintenance of VHF sets, limitations of VHF. VSAT, Hub earth station, space link, remote earth station, interface equipment, network control centre, bandwidth management, satellite block diagram, network component details-hub configuration, remote configuration, remote indoor unit, Mobile communication.

Power Plant Practice	Types of batteries, FCBC, SMPS chargers, Battery charging, Installation, Maintenance practices.
Electronic Telephone Exchange & IPABX	Stored Program Control (SPC), PCM-TDM principles Electronic Telephone Exchanges, speech, voice, data communications, signalling types, ISDN, WLL, Trunk Boards, Telephone traffic and dealing with telephone traffic at peak and slack hour working, system requirements, MDF/IDF wiring, cabling, power plant and protections, maintenance and repairs.
Computer basics	Basic computer concepts, notebook computers (laptop computer), Personal Digital Assistant (PDA) also known as Palmtop computer, desktop computers (PCs), Work Stations, Servers and Supercomputers Memory, Peripherals including mouse, printers, interfaces, disks, drives, controllers, USB ports, power supply, operating system concepts- single user/multi user, GUI & application software. Web page concept internet, worldwide web, e-mail and multimedia.
Data Networks	Types of networks, Network topologies, IP & non-IP based networks, NIC, hubs, nodes, clients, gateways, Routers, switches, modems, ISDN, DSLs, connectors adapters, data cables. Installation, commissioning and maintenance of datacom equipment in various LAN, WAN networks like internet (TCP-IP), data loggers, PRS, UTS etc., bandwidth requirements, broadband, path protections, standards, scalability, IP addressing. IP planning, network/sub- network masking, data security & encryption levels, software, firewall, intrusion detection & protection convergence, traffic monitoring, BER, jitter, wander measurements, testing of data channels of 2Mbps & 64 kbps speed, telnet, HTTP, FTP, maintenance using NMS and Do's & Don'ts.

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- **Syllabus for the post of Assistant Manager (Civil)**

Topics
General Aptitude/ General Knowledge/ General Awareness etc
Surveying: - Types of leveling Instruments, Temporary adjustments, Booking and reducing of levels, Checking the leveling work, longitudinal section, Cross Sections, Error due to curvature and refraction.
Total station/GPS Survey-Features of total station and GPS, Principles of working with GPS, adjustment of errors, Open and closed traverse and their application to engineering problems.
Trigonometrically Leveling-Heights and Distances, Geometrical Observations, Determination of Difference in Elevation.
Triangulation Systems, Base Line Measurement, Calculations of Length of Base, Measurement of Horizontal Angles.
Contours and Contour Interval, Methods of Locating Contours, Interpolation of Contours.
Route Surveying-Elements of Reconnaissance Survey, Preliminary Survey, Final Location Survey, Construction Survey.
Simple, compound, reverse and transition curves, Vertical curves for roads and railways, setting out curve by offset and by method of deflection angles, Length of curves calculation.
Hydrographic survey-sounding, charting, cross section of streams and rivers and gauging of discharges.
Principles and utility of Aerial photogrammetric and remote sensing, satellite data.
Soil as a three phase system water content, density and unit weights, specific gravity, voids ratio porosity and degree of saturation, density index.

Classification of soils, compaction, standard Procter test, water density relationship, modified procter test, field compaction methods, field compaction control, calibration curve, factors affecting compaction.
Exploratory boring, depth of exploration, spacing and number of boring, method of sampling and types of samples, bore logs, core recovery, rock quality designation, field vane shear test, standard penetration test and its application, field plate load test and limitation, ultimate bearing capacity of shallow foundation, Plate load test, Elements of combined and raft foundation.
Pile foundation – General considerations in pile foundation, types of piles, pile load test and use of relevant IS code.
Stability of slopes, classical theory of earth pressure by Rankine and Coulomb, active and passive pressure against retaining walls.
Differential method of improving soil characteristics at site, element of soil stabilization, sand drain, vibro flotation technique.
Data Required for Preparation of an estimate, Types of an estimates, Items of Work, Description of an Item of work, Measurement of Works, Guidelines for Measurements, I.S. mode or Units of measurements, Plinth Area, Floor Area, Carpet and F.S.I.
General procedure of measurement of works, Methods of taking out Quantities, Various items of works, Prime Costs and Provisional Sums, Provisional Quantities, Contingencies, Work-charged, Establishment, Centage Charges, Building Estimate Methods, Checks over Accuracy of Detailed Estimates.
Analysis of Rates – quantities of Materials and labour Required for different items of Works. Approximate Rates of Equipment/Machinery required for different items of Works. Transportation of Materials and cost. Rates specified for various categories of Laborers in Building Industry. Analysis of Rates of Principal Items of Work in the Building Construction.
Type of Specifications, Detailed Specifications, Standard Specifications
Type of tenders, components of tender document, preparation of tender document.
Beam:- Types of Supports, Shear Force and Bending Moment, Shear Force and Bending Moment Diagrams, Graphical Method of Plotting S.F. and B.M. Diagrams.
Beams: - Deflections by Moment Area Method and Conjugate Beam Method, Slope and Deflection for Cantilever and Simply Supported Beam, Analysis of Fixed Beam and Continuous Beams.
Column analysis with different support condition, column carrying eccentric load, laterally loaded column, effective height, short column, slender column.
Deflection of framed structures Moving loads on beam/frames, influence lines for bending moment and shear force in members of framed structure. Moment distribution and slope deflection methods.
Method of Design – Working Stress Method, Ultimate Load Method, Limit State Method
Singly and Doubly Reinforced Beams and slabs, columns
Shear Stress, Diagonal Tension, Shear Reinforcement, Development Length, Anchorage Bond, Flexural Bond
Basic Concepts of Prestressed Concrete
Stress strain curve for mild steel, rolled steel section, loads, permissible stresses, working stresses, factor of safety minimum thickness of structural members, Design methods.
Compression Members-Effective length, Slenderness ratio, Column design , Types of sections, assumptions, Design of Axially loaded compression members
Tension Members-Net sectional area, Permissible stress, Design of axially loaded tension member
Design of Plate girder – bending, shear, economical depth.
Welded joints, types of welds, design of fillet weld, design of butt weld.
Classification of highways, types of surveys, cross-section and profiles, soil investigation

Elements of right of way and standards, gradient, speed, sight distances, curves.
Testing of aggregate, bitumen and cement, Field quality test for earthwork, concrete work, brick & stone masonry, Road work.
California bearing ratio method for design of flexible pavement
Design of concrete pavement, pavement joints, preparation of the sub-grade and sub-base
Types of alignment survey, parameters of speed, loading and permanent way for various classes of railway line, schedule of dimensions.
Curves, gradient, earthwork and permanent way-rails, sleepers, ballast, fastenings and fixtures, points and crossings, level crossing.
Daily maintenance, periodical maintenance, maintenance of track alignment, maintenance of drainage, maintenance of track components, maintenance of points and crossings, maintenance of level crossing.
Airport Site Selection, Estimation of Future Air Traffic Needs, Runway Orientation, Runway Configuration, Basic Runway Length, Correction for Elevation, Temperature and Gradient, Airport Classification, Airport Capacity, Runway Capacity, Gate Capacity, Taxiway Capacity, Airport layout.

Syllabus for the post of Assistant Manager (Economics & Statistics)

Economic Theory and Applications, Theory of Economic Development & Finance, Fundamentals of economic growth and development, Concept & Quantitative Methods for Economic and Financial Analysis, Research methodology for economics, Economic statistics and applications, Descriptive Statistics, Probability theory, Distribution Theory, Sampling Theory, Operations research, International economics, Transport Economics

Candidate must have minimum 2 years of post-qualification experience with Understanding of different concepts of economics with respect to transport systems, requirements of Mass/ Rail Transit Studies, Transport Planning, Economic evaluation and financial structuring of mass transport projects

Awareness of best practices in and around about urban & regional transport planning.

Versed with suitable IT, GIS, database handling and analytical skills using computer software's.

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. 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. **Age, experience, and all other eligibility criteria shall be reckoned as on the last date of submission of application (cut-off date).**
11. The date of declaration of result / issuance of Marks Sheet shall be deemed to be date of acquiring the qualification and there shall be no relaxation on this account. No further relaxation shall be provided in this regard.
12. Where a specialization is required in the qualifying degree in the educational qualification, candidate is required to submit a certificate from the University/ Institution clearly specifying the specialization in the qualifying degree.

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 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	08.01.2024
2	Last date of submission of online application and online payment of fees	27.01.2024 4:00 PM
3	Issue of Admit Card	27.01.2024
4	Date of written examination	04.02.2024
5	Date of Document scrutiny followed by Interview	Feb-March 2024