

**RITES LIMITED**  
**(A Govt. of India Enterprise)**  
**Shikhar, Plot No. 1, Sector – 29, Gurgaon – 122001**



**Recruitment of Engineering Professionals on Contract Basis.**

RITES Ltd., a Navratna 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.

For posting at various project sites especially in UP, MP, Jharkhand, West Bengal and other locations as per requirement, 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 |
| 211/24 | Assistant Manager (Civil)      | 6                | -   | 2         | 1  | -  | 9     |
| 212/24 | Assistant Manager (S&T)        | 3                | -   | 1         | -  | -  | 4     |
| 213/24 | Assistant Manager (Electrical) | 2                | -   | -         | -  | -  | 2     |

**Age Limit**

| Maximum Age | Cut-off date for calculation of Age                              |
|-------------|--|
| 40 Years    | As on the last date of online application i.e. <b>09.01.2025</b> |

**Minimum Qualifications & Experience**

**Candidates must ensure that they are meeting Educational Qualification, Total Experience and Relevant Experience criteria as stated in the below mentioned table. Candidates not satisfying the stated criteria will be disqualified on the day of interview.**

| VC No  | Designation               | Essential Educational Qualification  | Minimum Post Qualification Work Experience                               | No. of years of post qualification experience in relevant filed  |
|--------|---------------------------|--|--|--|
| 211/24 | Assistant Manager (Civil) | Full time bachelor's degree in Civil engineering or equivalent<br>OR<br>Full time diploma in Civil Engineering or equivalent | For Degree holders:<br>02 years<br><br>For Diploma holders:<br>08 years' | <b>For Degree holders:</b> Minimum of 02 years' experience in Construction & Maintenance of Railway siding.<br><b>OR</b><br><b>For Diploma holders:</b> Minimum of 08 years' experience in Construction & Maintenance of Railway siding. |

|        |                                |  |   |  |
|--------|--------------------------------|--|---|--|
| 212/24 | Assistant Manager (S&T)        | Full time bachelor's degree in Electronics / Electronics & Telecommunication / Electronics & Communication / Electronics & Electrical / Electronics & Instrumentation Engineering or equivalent.<br>OR<br>Full time diploma in Electronics / Electronics & Telecommunication / Electronics & Communication / Electronics & Electrical / Electronics & Instrumentation Engineering or equivalent.   | For Degree holders:<br>02 years<br><br>For Diploma holders:<br>08 years | <b>For Degree holders:</b> Minimum of 02 years' experience in Erection & Maintenance of S&T systems of Railway.<br><b>OR</b><br><b>For Diploma holders:</b> Minimum of 08 years' experience in Erection & Maintenance of S&T systems of Railway. |
| 213/24 | Assistant Manager (Electrical) | 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 whole.<br>OR<br>Full time diploma 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 whole. | For Degree holders:<br>02 years<br><br>For Diploma holders:<br>08 years | <b>For Degree holders:</b> Minimum of 02 years' experience in Erection & Maintenance of OHE of Railway.<br><b>OR</b><br><b>For Diploma holders:</b> Minimum of 08 years' experience in Erection & Maintenance of OHE of Railway.                 |

\*Candidate belonging to General/ 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 Qualifications:**

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.

**Experience shall be calculated as on 09.01.2025.**

## 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.

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:

| Discipline | Categories for which identified | Functional Classification | Physical Requirements              |
|------------|---------------------------------|---------------------------|------------------------------------|
| Civil      | Locomotor disability            | OA, OL                    | S, ST, BN, W, SE, MF, C, R, W & RW |
|            | Hearing Impairment              | HI                        |                                    |
| S&T        | Locomotor disability            | OA, OL                    |                                    |
| Electrical | Locomotor disability            | OA, OL                    |                                    |
|            | Hearing Impairment              | HI                        |                                    |

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:

| Code | Functions                 |
|------|---------------------------|
| OL   | One leg affected (R or L) |
| OA   | One arm affected          |
| OAL  | One arm one leg affected  |
| BL   | Both legs affected        |
| HI   | Hearing Impaired          |
| LV   | Low Vision                |

Physical Requirements:

| Code | Physical Requirements                         |
|------|---|
| S    | Work performed by sitting (on bench or chair) |
| ST   | Work performed by standing                    |
| SE   | Work performed by seeing                      |
| RW   | Work performed by reading and writing         |
| BN   | Work performed by bending                     |
| MF   | Work performed by manipulation by fingers     |
| C    | Work performed by communication               |
| W    | Work performed by walking                     |
| H    | Hearing/ Speaking                             |
| KC   | Kneeling and Crouching                        |
| JU   | Jumping                                       |
| CL   | Climbing                                      |

**The above lists are subject to revision.**

### Selection Process

The applications received shall be screened for eligibility. The candidates may be shortlisted for selection. The company reserves the right to shortlist the number of candidates for selection out of eligible candidates. The weightage distribution of various parameters of the selection shall be as under:

|  |      |
|--|------|
| Written Exam -   | 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.

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

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.

The candidates shall have to produce copies of educational qualification and experience claimed which shall be verified from the original documents at the appropriate stage.

**Based upon fulfilling the conditions of eligibility; candidates shall be shortlisted for Interview. The decision of RITES as whether a candidate is Eligible/Ineligible shall be final and no correspondence in this regard shall be entertained.**

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

### Nature & Period of Engagement

The appointment shall be purely on contract basis initially for a period of one year, extendable until completion of the assignment subject to mutual consent and satisfactory performance.

Selected candidates shall be liable for posting anywhere in India as per Company requirements.

### Remuneration

Pay, allowances and perks for the post would be as per the minimum number of years of work experience detailed below:

**For VC No. 211/24 to 213/24**

| Number of Minimum Work Experience as per the advertisement | Monthly Basic Pay for Degree Holders | Yearly CTC for Degree Holders |
|--|--------------------------------------|-------------------------------|
| 2  | 23340                                | 509741                        |

| Number of Minimum Work Experience as per the advertisement | Monthly Basic Pay for Diploma Holders | Yearly CTC for Diploma Holders |
|--|---------------------------------------|--------------------------------|
| 8  | 19508                                 | 426060                         |

**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”, candidate should submit the application.**
6. 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 selection (if called).
7. A copy of this online **APPLICATION FORM** containing the registration number is to be printed, signed, and retained. The same is to be submitted at the time of Scrutiny of Documents along with **SELF-ATTESTED PHOTO COPIES** of the following documents strictly in the following order. (if called for document scrutiny):
  - a. 1 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 license, 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).

**Note: No documents are to be submitted while submitting online application. All the candidates who will submit online application will be provisionally eligible for written test. Scrutiny of documents for checking eligibility will be done on the day of Interview and they have to carry the above-mentioned documents. Only eligible candidates will be allowed to appear for Interview.**

8. In respect of claims made by you in your application with regard to experience, copies of experience certificates from your previous employer are to be submitted at the time document verification. 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 submitted. In case your claim is not established from the proofs submitted by you; your candidature is liable to be rejected at the time document scrutiny. Please check your claims vis-a-vis the certificates in support thereof establishing your candidature. Incomplete application or insufficient proof at the time of document verification would entail rejection of your candidature. No additional information other than those furnished in the Application shall be allowed to be considered at a later stage.
9. 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.
10. 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.
11. Hard copies of documents are not to be sent to this office through post/ courier.
12. The original testimonials/documents along with one self-attested copy will have to be produced by the candidate(s) at the time of selection (if called).
13. Mere applying for the post/ submission of documents/ appearing or qualifying in the selection does not confer any right on the candidates for claiming selection. If it is found that a candidate does not fulfil the advertised eligibility criteria, his/her candidature will be summarily rejected.
14. 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.
15. 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.
16. If any claim made by a candidate is found to be incorrect, his/her candidature shall be summarily rejected.
17. **Candidate has to bring duly filled two copies of Annexure A, documents in chronological order and submit at a time of Document verification/Selection process.**

| S. No. | Selection Round  | Venue  |
|--------|--|--|
| 1      | Written Test   | Kolkata and Gurugram   |
| 2      | Interview<br>(Subject to performance<br>in Written Test) | Venue for the Interview shall be communicated to<br>shortlisted candidates |

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

### 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. **Age, experience, and all other eligibility criteria shall be reckoned as on the last date of submission of application (cut-off date).**
11. Date of acquiring the qualification will be earliest of the following:
  - i. Last day of month in which final examination of qualifying degree has been held. In cases where exact date of written examination is stated, the same will be treated as date of acquiring the qualification.
  - ii. Date of declaration of result
  - iii. Date of issuance of marksheet
  - iv. Date of issuance of degree

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.

### Syllabus for Written Test

- **Syllabus for the post of Assistant Manager (Civil) (VC No. 211/24)**

| Topics   |
|--|
| <b>Surveying:</b> - 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 labor 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.  |
| <b>Beam:</b> - Types of Supports, Shear Force and Bending Moment, Shear Force and Bending Moment Diagrams, Graphical Method of Plotting S.F., and B.M. Diagrams.   |
| <b>Beams:</b> - 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 (S&T) (VC No. 212/24)**

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.

Signaling & Power supply system

Signaling 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 signaling cables, cable insulation resistance, Meagering of cables, Earth leakage detectors, Maintenance Free Earth Clamp meter, Cable fault route locator & Electro Magnetic Interface Shielding. Earthing of signaling cables and equipment. Steps to improve Localization of faults and repair. Laying of signaling 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 Signaling

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 Signaling        | 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 Signaling. |
| Block Signaling-        | 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 Fiber Communication system      | OFC system, Principles of working (PDH & SDH), OFC Channel testing, Ring protection and NMS. Construction details of Fibers 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.

- **Syllabus for the post of Assistant Manager (Electrical) (VC No. 213/24)**

**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.

**Communication with RITES**

Any information regarding this recruitment process would be made available on the email 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 site 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 may not be attended to.

| Important Dates |  |                             |
|-----------------|--|-----------------------------|
| S. No.          | Particular                                       | Date                        |
| 1               | Commencement of submission of online application | <b>20.12.2024</b>           |
| 2               | Last date of submission of online application    | <b>09.01.2025</b>           |
| 3               | Issuance of call letter for written test         | <b>13.01.2025</b>           |
| 4               | Date of Written Test ( <b>Tentative</b> )        | <b>19.01.2025</b>           |
| 5               | Date of Interview                                | <b>To be notified later</b> |

**Annexure-A**

**Rites Limited**  
**Documents Submission Check-List**

With reference to my application, I am submitting requisite Document(s) along with duly self-attested photocopies of my certificates as under (in chronological order):

| S. No. | Documents name   | Submitted (Y/N) | Remarks |
|--------|--|-----------------|---------|
| 01     | 10 <sup>th</sup> /High School certificate for proof of Date of Birth   |                 |         |
| 02     | 12 <sup>th</sup> Marksheet   |                 |         |
| 03     | Diploma / Graduation Marksheets- All semesters   |                 |         |
| 04     | Diploma / Graduation Certificate   |                 |         |
| 05     | Post Graduation Marksheet All semesters  |                 |         |
| 06     | Post Graduation Certificate (as applicable)  |                 |         |
| 07     | PhD Marksheets & Certificate, if any   |                 |         |
| 08     | Other Academic Qualification / Certification, please specify: _____  |                 |         |
| 09     | List of Experience certificates submitted:<br>1. _____<br>2. _____<br>3. _____<br>4. _____<br>5. _____<br>6. _____<br>7. _____ |                 |         |
| 10     | Last company relieving letter/ experience certificate, NOC (For Govt./PSU Employees)   |                 |         |
| 11     | ADHAR Card   |                 |         |
| 12     | PAN Card   |                 |         |
| 13     | Copy of Bank Account Passbook/Statement  |                 |         |
| 14     | 08 recent passport size colour photographs   |                 |         |

I also certify that the above documents are authentic, valid and true to the best of my knowledge. If any of the above document(s) or any information contained therein is found to be false, my candidature/ employment may be summarily rejected/ cancelled.

|  |  |
|--|--|
| Signature of candidate                   |  |
| Name of candidate                        |  |
| Date of Documents Submission             |  |
| Post Name                                |  |
| VC No against which Documents Submission |  |

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**For official use only**

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I have verified the above documents submitted by the candidate and found **them to be / not to be** (strike out one of these) in order as per company requirement(s)

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|--|--|
| Any other remarks/ details of lack of documents: |  |
| Signature of officer accepting documents         |  |
| Name of officer accepting documents              |  |
| Designation of officer accepting documents       |  |
| Date   |  |