



**TRANSMISSION CORPORATION OF TELANGANA LIMITED  
CORPORATE TRAINING INSTITUTE:: GTS Colony::Hyderabad-45**

Website Name: [tstransco.in](http://tstransco.in) CIN Number: U40102TG2014SGC094248

**ABSTRACT**

Sub: TSTRANSCO – CTI – Eligibility criteria for appointment to the post of Junior Lineman under Compassionate Grounds/Medical Invalidation and Appointment by Transfer from lower categories, without ITI qualification - Syllabus, training and test methods - Imparting training - Orders –Issued - Reg.

-----

T.O.O.(CE/Training) Ms.No.752

Date:20.04.2020

Read the following

Ref: 1) T.O.O.(Additional .Secy-Per)Ms.No.226,Dated:-17.12.2008  
2) T.O.O.(Additional .Secy-Per)Ms.No.72,Dated:-20.06.2009  
3) T.O.O.(Additional .Secy-Per)Ms.No.135,Dated:-06.10.2009  
4) T.O.O.(Additional .Secy-Per)Ms.No.237,Dated:-15.01.2010  
5) T.O.O.(Additional .Secy-Per)Ms.No.232,Dated:-18.09.2010  
6) T.O.O.(Additional .Secy-Per)Ms.No.233,Dated:-18.09.2010  
7) T.O.O.(Jt-Secy-Per)Ms.No.152,Dated:-17.10.2017  
8) Memo.No.JMD(Fin,Comml&HRD)/CE(Trg)/SE(CTI&Enq)/DE(T&D)/(I)/  
F.Estt/D.No.76/20, Dt:-11.02.2020.

\*\*\*\*\*

**ORDER:**

1. In the T.O.O. 7<sup>th</sup> cited above, TSTRANSCO ordered that, the JLMs who were appointed as per the T.O.O's 1<sup>st</sup> to 6<sup>th</sup> cited and not acquired ITI qualification prior to issuance of these orders shall be given suitable training for a period of three months and pole climbing test also to be conducted at CTI, Erragadda, Hyderabad and after successful completion of training, a practical test for evaluation of the performance of the employee shall be conducted for making them eligible for the post of JLM and they will be regularized on one time basis.
2. Accordingly, a committee is formed to review the syllabus, duration of training and test methods for eligibility for appointment to the post of Junior Lineman who were appointed without ITI qualification under Compassionate Grounds/Medical Invalidation and appointment by Transfer from lower categories.
3. Accordingly the syllabus, duration of training and test methods are formulated and appended to this T.O.O in the Annexure.
4. These orders are also available on TSTRANSCO website and can be accessed at the address [www.tstransco.in](http://www.tstransco.in)

Encl: Annexure (Syllabus)

**D.PRABHAKAR RAO  
CHAIRMAN & MANAGING DIRECTOR**

To  
The Chief General Manager(HRD)/TSTRANSCO/VS/Hyderabad  
The Chief Engineer(Transmission)/TSTRANSCO/VS/Hyderabad  
The Chief Engineer/Zones/TSTRANSCO

P.T.O.

Copy to:

PS to Chairman & Managing Director/ TSTRANSCO/VS/Hyderabad  
PS to JMD(Finance, Comml., & HRD)/ TSTRANSCO/VS/Hyderabad  
PS to Director(Projects)/TSTRANSCO/VS/Hyderabad  
PS to Director(Grid Operation)/ TSTRANSCO/VS/Hyderabad  
PS to Director(Lift Irrigation Schemes)/TSTRANSCO/VS/Hyderabad  
PS to Director(Transmission)/TSTRANSCO/VS/Hyderabad  
PS to Director(HR)/TSGENCO/VS/Hyderabad  
The Chairman & Managing Director/TSSPDCL/Hyderabad  
The Chairman & Managing Director/TSNPDC/ Warangal  
The Executive Directors/TSTRANSCO/VS/Hyderabad  
The Joint Secretary/ TSTRANSCO/VS/Hyderabad  
The FA&CCA/Dy.CCA/TSTRANSCO/VS/Hyderabad  
All Chief General Managers(HRD)/TSSPDCL & TSNPDCL  
The Superintending Engineer/CTI/Erragadda/Hyderabad  
The Senior Accounts Officer/CTI/Erragadda/Hyderabad  
The Superintending Engineers/OMC/TSTRANSCO  
All Deputy Secretaries/TSTRANSCO/VS/Hyderabad  
The Pay Officer/The Accounts Officer/CPR/TSTRANSCO/VS/Hyderabad  
The Divisional Engineer(IT)/ADE(HRMS)/TSTRANSCO  
All Assistant Secretaries of CE/Zones/TSTRANSCO  
The General Secretary, TSEEU(Regd.No.1104), Mint Compound, Hyderabad  
The General Secretary, TSSEEU(Regd.No.327), Mint Compound, Hyderabad  
The General Secretary, TNVKS Telangana (Regd.No.B-1245), Mint Compound, Hyderabad  
The General Secretary, Telangana Rastra Vidyut Karmika Sangam, (R.No.H-58),  
H.O:Q.No.3-7-443, 444 Beside 132/33KVSS, Jagtial Road, Karimnagar  
The General Secretary, Telangana Electricity Engineers Association, Regd. No.319/07, MC,Hyd  
The President Telangana State Power Engineers' Association(Regd.No.555/14), H.No.6-3-663,  
Somajiguda, Hyderabad  
The General Secretary, Telangana State Electricity Assistant Engineer's Association,  
(Regd.No.1185/77), New Paloncha-507115  
The General Secretary, Telangana State Electricity Assistant Engineer's Association  
(Regd.NO.272/2014), H.No.5-9-22/55, Adarsh Nagar, Hyderabad – 500 063  
The President, T.S Power Engineers Association (Regd.279/2009), 2<sup>nd</sup> Floor, SSR Chamber,  
Opp.Rajdooth Hotel, Telephone Bhavan Road, Lakdikapool, Hyd  
The Founder President, Telangana Electricity Employees Association, Regd.No.H-61, Plot No.62,  
Ayyappa Colony, Phase-I, Near Gayatri Dhyana Mandir, Dammaiguda,(V) Keesara,(M)  
Hyderabad-83  
STOCK File

//Forwarded by Order//

//Assistant Divisional Engineer/TOT-I/CTI//

**Syllabus, Training and Test Methods for Eligibility criteria for appointment to the post of Junior Lineman under Compassionate Grounds/Medical Invalidation and Appointment by Transfer from lower categories, without ITI qualification**

ITI SYLLABUS (DURATION: 30 DAYS)		
S.No.	DAY	SUBJECT
1	Day-1	Organisation structure and Role of JLMs in TSTRANSCO Introduction of Electrician Trade
2	Day-2	Electrical Graphical symbols Transmission & Distribution of electricity
3	Day-3	Electrical hand tools and electrical tools Practicing and identifying of hand tools and electrical tools
4	Day-4	Causes for electric fire in Electrical systems and Introduction of fire Extinguishers, Introduction of Electrical safety and Electrical shock Practicing of how to use fire Extinguishers and use of proper Tools & Equipment & its maintenance
5	Day-5	Basics of Electricity and the parameters related to Electricity Fundamentals, Ohm's Law, Electrical circuits, Kirchhoff's Laws Solving simple electrical circuit problems
6	Day-6	Introduction of Electrical Measuring Instruments, principle and construction Measurement of current & voltage in series and parallel circuits, identifying the resistances by colour coding.
7	Day-7	Electric theatrics and connections Inductors and capacitors
8	Day-8	Magnetic Energy Magnetic circuits and Principles
9	Day-9	Cells and Batteries - Primary & Secondary cells, their construction & working Use of magnetic compass
10	Day-10	Work, Power and Energy ,Active & Reactive power, Causes & Effects of low power factor methods of improving power factor <i>Generation of power:</i> Thermal, Hydel and single Line Diagram of Thermal and hydel Power plants
11	Day-11	Electrical wiring Mounting Accessories Electrical wiring Mounting Accessories
12	Day-12	D.C Circuits D.C Machines, Care & Maintenance
13	Day-13	D.C machines / motors Motor fundamentals
14	Day-14	Type of wires and conductors, comparison between different types of wirings Practice in using wire gauge and micrometer
15	Day-15	Wires and joints Wires and joints practicals -PVC, Casing, capping, conduit wiring, Testing, Maintenance & repairing of wiring
16	Day-16	Wiring systems and types, National electrical code, SWG, common electrical accessories - MCB, ELCB, MCCB, RCCB etc. Identifying MCBS, ELCB etc.
17	Day-17	Procedures for house wiring, specification of grading of cables Estimate the materials for PVC conduit, wiring of fans, lights, sockets
18	Day-18	ISI Rules in house wiring, Estimation of House Wiring Industrial wiring and tools, Equipment
19	Day-19	General problems in house wiring Submersible pumps
20	Day-20	Transformer working principles, different types of transformers Identifying different transformers with capacity and structure
21	Day-21	Earthing of DTR, Earth pits, Protective devices used Practical how to dig earth pits and earthing
22	Day-22	Principles of operation, construction of Ceiling fan and table fan, Calling bell and hair dryer, Electric stove, Immersion heater Method of preparing winding, ceiling former and coils rewinding a ceiling fan , table fan
23	Day-23	Illumination, Florescent lamp, HPMV and HPSV lamps, Power saving lamps, Special lamps, Neon sign lamps Connection & Installation of all kinds of lamps, Assemble and Install a fluoresent lamp
24	Day-24	Electric heat and room heater, Electric oven and Cooking range, Electric kettle, Geyser, Electric iron box, Electric Mixer, Washing Machine, Wet Grinder Connection & Installation, Assemble of parts of room heater, Electric oven

25	Day-25	A/C Fundamentals, A/C circuits, Single phase Induction motor Simple problems solving of AC circuits
26	Day-26	A/C Meters with practical A/C Meters with practical, LT lab
27	Day-27	Basic rectifiers and Inverter circuits, working principles, Constructions, Parameterization, Speed control A/C 1 ph, 3 ph, Motor windings, practicals, observations,
28	Day-28	Preventive & Break down maintenance of DC/AC machines, Voltage stabilizer, UPS, Inverter Practice of wiring of UPS & Inverter
29	Day-29	Maintenance of AC / DC machines, Voltage stabiliser, UPS, Inverter & Drives Practice on control cabinet / Control panel assembly, wiring, checking / buzzing & testing on 3 phase induction motor
30	Day-30	Conventional and non conventional energy resources, Non-conventional energy - Introduction, various types of Non-conventional energy resources - wind, solar, small hydro and bio-mass. Single line diagram of Wind power, Plants
<b>TSTRANSCO SYLLABUS (DURATION: 16 DAYS)</b>		
31	Day-31,32,33	<b>A. CBD Works</b> 1. Carrying out pre-monsoon inspection, normal patrolling, special patrolling and preventive maintenance of 400KV, 220 KV & 132 KV EHT Lines. 2. Fixing of missing tower members i.e., Angle pieces, Bolts and nuts, Inspection of M.S. Joints, Jumpers, providing of repair sleeves, replacement of broken/flushed over insulators and rectification of any tower defects etc., 3. Jungle clearance and tree cutting underneath the EHT Lines 4. Attending to all breakdowns on EHT lines and Sub-Stations. 5. Painting works of EHT Lines and Sub-Stations and welding works 6. Special maintenance works such as cleaning of Bushings of equipments, replacement of jumpers and clamps, maintenance of isolators, replacement of silica gel in breathers, attending to leakages of oil from current transformers, Potential Transformers and Power Transformers etc., changing of oil in MOCBs / OLTCs, topping up of oil etc., Replacement of all Sub-station equipment, loading and unloading of equipment and line material, modification of earthing systems, cleaning of cable trenches, cleaning of accumulated dust on batteries, Relay panels etc. 7. Oil filtrations work in Power Transformers
32	Day-34,35,36,37	<b>B. OPERATION OF SUBSTATIONS</b>  <b>a. SUBSTATIONS :</b>  Recording readings of boundary metering points, lines and sub-stations maintenance and record in log book, recording all trippings of breakers and other events, All operations to be recorded in log book, safety precautions and entire safety of the men and material, attending of all emergencies i.e., equipment failures, fire accidents etc., maintaining of interruptions register, Battery register etc.  <b>b. TRANSFORMERS:</b>  1. Checking of temperatures of oil and winding 2. Checking un-usual internal noises. 3. Check the condition of silica gel and record in the Log Book. 4. Check up operation of Cooler Fans and Oil pump of Power Transformer.  <b>c. 132 / 33 / 11 KV BREAKERS CIRCUIT:</b>  Checking of healthiness of trip circuits, SF6 Gas pressure, pneumatic and hydraulic pressures and its leakage if any.  <b>d. SWITCH YARD :</b>  Checking the Yard at hourly intervals and note down any unusual observations, defects, sparks, loose contacts, Red hot spots and loose bolts and nuts etc.  <b>e. BATTERIES:</b>  1. Taking specific gravity and voltage of pilot cells daily during morning shift and for all cells weekly once. 2. Checking DC Earth leakage. <b>f. EARTH PITS :</b>  All the earth pits are to be watered daily.

		<p><b>g. GENERAL / MAINTENANCE:</b></p> <p>1.To be carried out in each shift, as per operating instructions given by the DE / O&amp;M and as per <b>CHECK LIST.</b></p> <ol style="list-style-type: none"> <li>220/132/33KV Bus Voltages, frequency and Station Load.</li> <li>Check healthy trip of all the breakers.</li> <li>Check battery voltages, DC leakage, charger conditions, Switch off the charger and note battery voltage.</li> <li>Check whether the battery is in Boost or Tickle charge condition.</li> <li>Check the carrier phones in all directions and intimate the Telecom wing in case of trouble. Similarly Wire-less and P &amp; T Phones to be check-up.</li> <li>Check the Diesel Generator if available and make a Trial Run for 8 minutes once in a day. Check the voltages.</li> <li>Check the annunciation panels. Press the lamp test and report the failure of lamps to maintenance wing.</li> <li>Check the load and amperage in all phases on each feeder.</li> <li>Check the power Transformers physically. Note the oil and winding temperatures, load and tap position, Cooling fans condition and oil levels in the conservator, tap changer diverter switch, Bushings and dehydrating breather.</li> <li>Check the condition of the Air compressor; Note the amperage, Air pressure, Air pressure at different locations (i.e. wherever pressure gauge is available).</li> <li>Check the entire yard for any unusual sounds.</li> <li>During shift, check for sparking at joints/jumpers.</li> <li>Check for compressor air leak at all locations where the main line is tapped.</li> <li>Check the oil level in the MOCBs.</li> <li>Check the Gas pressure, air pressure in SF6 Circuit Breakers and oil level in the Air compressor.</li> <li>Check for any sparking or flashover marks at the earth pit connections and intimate the maintenance staff.</li> <li>To note the running hours of each compressors and periodically change-over the compressor. Separate Register for running of the compressors to be maintained.</li> <li>Check for proper watering of EARTH-PITS.</li> <li>Check whether all the energy meters of the feeders are working or not, report to staff on any defect noticed.</li> <li>Activate protection whenever LC is issued on any feeder/transformer besides ensuring hand tripping.</li> <li>Check the fire fighting appliances availability at assigned locations.</li> <li>Ensure that all the relevant relays flags are in “RESET” position.</li> <li>Note down the OLTC Counter.</li> <li>Ensure that the L.A Micro Ammeter reading 1 in safe range.</li> <li>Whenever a feeder tripping occurs, contact the other end station and note down the Relay indications.</li> <li>When the C.B. is provided with a separate compressor/Air Tank, Drain Air to sufficient quantity for ensuring auto-start of air compressor</li> </ol> <p>2. Report to the concerned AAE/AE and ADE on important occurrences of Breakdowns and defects observed.</p>
--	--	---

33	Day-38,39,40	<p><b>C. OPERATION OF SUBSTATIONS</b></p> <p><b>DAILY MAINTENANCE :</b></p> <p><b>a. E.H.V. POWER TRANSFORMERS</b></p> <ol style="list-style-type: none"> <li>1. Checking the colour of Silica gel in the breather and replacement or reconditioning if colour changes from blue to pink say about 50% of the total quantity.</li> <li>2. Checking of oil level in (a) main conservator (b) OLTC conservator (c) bushings and examining for leaks of oil.</li> <li>3. Checking for noise and vibrations or any abnormality from oil pumps and cooling fans.</li> <li>4. Checking for pressure relief explosion vent diaphragm for cracks.</li> <li>5. Forced cooling system. Checking for leakage of water into cooler (forced cooling system by oil pumps).</li> </ol> <p><b>b. SF6 CIRCUIT BREAKERS OF 33 KV AND ABOVE</b></p> <ol style="list-style-type: none"> <li>6. SF6 pressure density monitoring (in each shift)</li> <li>7. Checking of air pressure (in each shift)</li> <li>8. Draining out condensed water from HP cylinders (Twice daily)</li> <li>9. Anti condensation heaters.</li> <li>10. Checking of oil leakage from gauge glass, drain valve and other joints.</li> <li>11. Checking of air pressure.</li> <li>12. Draining of moisture from air receiver, visual inspection, cleaning.</li> <li>13. Checking of cumulative running hour of compressor.</li> <li>14. Checking of oil pressure and level.</li> <li>15. Visual check for oil leakage.</li> </ol> <p><b>c. BATTERIES / BATTERY CHARGER / DC DISTRIBUTION SYSTEM</b></p> <ol style="list-style-type: none"> <li>16. Checking of battery surface joints and all connections</li> <li>17. Measurement of Specific gravity of pilot cell</li> <li>18. Voltage reading of pilot cells</li> <li>19. Visual checking of battery room ventilation and lighting</li> <li>20. Checking of healthiness of AC supply to the charger.</li> <li>21. Output voltage check</li> <li>22. Checking for DC earth leakage</li> <li>23. Checking for emergency lights.</li> <li>24. Auto start and running up of DG set</li> <li>25. Checking D.C. Distribution (i) External (ii) Internal</li> </ol> <p><b>d. LIGHTNING ARRESTORS :</b></p> <ol style="list-style-type: none"> <li>26. Visual inspection</li> <li>27. Surge counters reading.</li> </ol> <p><b>e. ISOLATORS :</b></p> <ol style="list-style-type: none"> <li>28. Visual inspection</li> </ol> <p><b>f. CURRENT TRANSFORMERS :</b></p> <ol style="list-style-type: none"> <li>29. Visual check</li> <li>30. Oil leakage</li> </ol> <p><b>g. MAINTENANCE OF CVTs :</b></p> <ol style="list-style-type: none"> <li>31. Oil leakage</li> <li>32. Chattering sounds</li> </ol> <p><b>h. EARTH PITS :</b></p> <ol style="list-style-type: none"> <li>33. Watering of earth pits</li> </ol> <p><b>i. CHARGERS :</b></p> <ol style="list-style-type: none"> <li>34. The floating voltage of the charger across the battery should be noted at the charger end, as well as at the battery end and it should be ensured that the floating voltages is kept at 2.16 volt per cell stabilized within + / - 1%</li> <li>35. The float charger has to be examined to check whether the same is working in 'Auto mode only which the + / - 1% voltages stability across the battery can be guaranteed.</li> <li>36. Electrolyte specific gravities have to be taken every day, 50% of the cells of the battery bank can be used as pilot cells for daily specific gravity measurements.</li> <li>37. The cell containers, stands, insulators, connectors, vent plugs, terminals etc., have to be cleaned every day.</li> <li>38. To ensure that the full battery is available across the DC load terminals, it is necessary to switch-off the float charger, float an one-minute duration every day, at a specific time to note the battery discharging through the load of the bus bar. This will also ensure that battery is healthy and that there is no open circuit anywhere.</li> </ol> <p><b>j. MONTHLY MAINTENANCE :</b></p> <ol style="list-style-type: none"> <li>1. Cleaning all bushings of Power transformer, station transformer, LA's, CB's, CT's, PT's &amp; any other equipment</li> <li>2. Checking of Bochoholtz relay for any gas or air entrapped.</li> <li>3. Checking the Electrical circuits.</li> <li>4. Replacing / reconditioning of silica gel in the breather and its connected system.</li> </ol>
----	--------------	---

		<p><b>k. QUARTERLY MAINTENANCE :</b></p> <p>1. Collecting transformer oil samples from the power transformers condition of breathers and its connected system. <b>2.</b> Maintenance of Batteries</p> <p><b>I. HALF YEARLY MAINTENANCE :</b></p> <p>1. Checking of LA’s and Bushings and insulators for cracks, if any.</p> <p><b>m. YEARLY MAINTENANCE :</b></p> <p>1. Collecting transformer oil samples oil samples from power transformer and OLTC for testing.</p> <p>2. Checking Bochoholtz relay operation by injecting air into gas collection chambers.</p> <p>3. Measurement of earth resistance by earth Resistance Tester (Megger)</p> <p>4. Checking the yard lighting.</p>
34	Day-41,42	<p><b>D. MRT ASSISTANCE RELATING TO THE MRT SUB-DIVISIONS</b></p> <p>The scope of service to be provided under the guidance and control of MRT Engineers shall include, but not limited to the following:</p> <p>The JLM shall assist the MRT Engineers during :</p> <p>i) Daily/ routine/ periodical/ preventive Maintenance works and Sub-station emergencies.</p> <p>ii) be available to attend Grid emergencies round the clock.</p> <p>iii) Periodical testing of boundary meters between TSTRANSCO, GENCO, DISCOMS and Private Developers and rectification of defective meters etc.</p> <p>iv) Periodical tests of CTs, PTs and Power Transformers for Tan-Delta&amp; Capacitance tests etc.</p> <p>v) Periodical testing of Relays and replacement of defective schemes if any.</p> <p>vi) Rectification works of Switchgear, Power Transformers, Battery Chargers and Control &amp; Relay panels including both Electrical &amp; Mechanical, if any.</p> <p>vii) Calibration of Panel meters such as Ammeters, Voltmeters, MW meters, MVAR meters and replacing the defective meters etc.</p> <p>viii) Replacement of old C&amp;R panels, Annunciation Schemes, old and damaged cables etc.</p> <p>ix) Laying of cables and commissioning of newly erected equipment.</p> <p>x) Testing and commissioning of new equipment such as Breakers, C&amp;R panels, Instrument Transformers yet to be commissioned in new sub-stations etc.</p> <p>xi) Changing of transformer oil to the Power Transformers, MOCBs, CTs, CVTs etc. and its filtration works.</p> <p>xii) SF6 gas filling works pertaining to SF6 breakers.</p>
35	Day-43	<p><b>E. ASSISTANCE FOR TELECOM WING</b></p> <p>The scope of service to be provided under the guidance and control of TELECOM Engineers shall include, but not limited to the following:</p> <p>The JLM shall assist the Telecom Engineers during :</p> <p>i) Monitoring of grid communications at EHT Sub-stations and VHF communication at 33kV &amp; EHT Sub-stations periodically as per the instructions given by field engineers at site.</p> <p>ii) Recording the communication interruptions that occur in the order of sequence with the time of occurrence correctly and intimating the same to the Engineer in charge immediately.</p> <p>iii) Following strictly the operating instructions given by the ADE/AE to carry out the operations like switching ON the cabinet, resetting the systems, carrying out minor repairs etc.</p> <p>iv) Observing safety precautions and ensuring safety to men, material and equipment.</p> <p>v) Responding to the instructions given by the Engineer-in-charge.</p> <p>vi) Cleaning of the PLCC/Wideband/VHF equipment to keep it dust free.</p> <p>vii) Maintaining the Batteries neatly, taking the specific gravity and voltages of the pilot cells daily and for all cells once in a week and recording the values in a separate register.</p> <p>viii) Any other minor works allotted by the concerned ADE/AE.</p> <p>ix) Assisting the ADE/AE in attending rectification of PLCC/Wideband/VHF problems.</p>
36	Day-44	<p><b>F. Special Maintenance Gangs without 3 Ton Van at certain critical EHT Sub-stations</b></p> <p><b>SCOPE OF WORK :</b></p> <p>A) Carrying out preventive maintenance of 220KV &amp; 132 KV critical EHT Sub-stations.</p> <p>B) Attending to all breakdowns at critical EHT Sub-Stations and connected Lines.</p> <p>C) The painting works of EHT Lines and Sub-Stations and welding works are to be carried out</p> <p>D) Special maintenance works such as cleaning of Bushings of equipments, replacement of jumpers and clamps, maintenance of isolators, replacement of silica gel in breathers, attending to leakages of oil from current transformers, Potential Transformers and Power Transformers etc., changing of oil in MOCBs / OLTCs, toping up of oil etc., replacement of all Sub-station equipment, loading and unloading of equipment and line material, modification of earthing systems, cleaning of cable trenches, cleaning of accumulated dust on batteries, Relay panels etc., any other works assigned by TSTRANSCO Engineer are to be carried out.</p> <p>E) Oil filtrations work in Power Transformers is also to be attended.</p> <p>F) Works such as Yard cleaning i.e., grass cutting, tree clearance and any other works in the Sub-Station Yard as assigned, are to be carried out.</p> <p>G) The work under execution is to be done under the supervision of supervisor and as per the directions of TS Transco Engineer- in -charge.</p>

37	Day-45,46	<p><b>G. 400 KV SUBSTATIONS</b></p> <p>a. Transformers (Functioning and performance of Transformers)</p> <ol style="list-style-type: none"> <li>1. Checking of Breather Silica Gel colour.(if the colour changes)replacement/Reconditioning as per the directions of the Engineer.</li> <li>2. Auto Start/manual start of PTR fans,</li> <li>3. Taking oil samples from PTR and Station Transformer.</li> <li>4. Checking Oil levels Main and OLTC conservator Tank, Observation of any oil leakages.</li> <li>5. OLTC operation of PTR's</li> <li>6. Observation of Red hots(Hot spots)at connecting terminals.</li> <li>7. Functioning of Fire Fighting equipments and their usage depending upon type of fire.</li> </ol> <p>b. Lightning Arrestors</p> <ol style="list-style-type: none"> <li>1. Visual inspection of LA i,e any chipping or cracks etc</li> <li>2. Surge counter reading.</li> <li>3. Leakage current reading</li> <li>4. Observation of Redhots(Hot spots) at connecting terminals.</li> <li>5. About Earthgrid and Checking the earthing connections.</li> </ol> <p>c. Isolators</p> <ol style="list-style-type: none"> <li>1. Visual inspection of Isolator Insulators and proper closing/Opening of Isolator.</li> <li>2. About LC procedure and LC time, proper closing of earth switch etc.,;</li> <li>3. Tightness of earth Flats etc,</li> </ol> <p>d. Current Transformers/CVT/PT's (Functioning and performance of Current Transformers).</p> <ol style="list-style-type: none"> <li>1. Visual inspection of Current Transformers</li> </ol> <p><b>400 KV LINES</b></p> <p><i>I The following should be observed during line patrolling,</i></p> <ol style="list-style-type: none"> <li>1. Type of Tower, Tower schedules &amp; Tower BOM and Type of Conductor •</li> <li>2. Checking of missing angles, Bolts &amp; Nuts etc.</li> <li>3. Checking of Sag between Tower to Tower and Ground Clearances.</li> <li>4. Line crossings &amp; Road crossings if any</li> <li>5. Checking of Insulators(Flashover &amp; Punctures)</li> <li>6. Checking of Arcing Horns, Vibration Dampers, Earth Bonds, Birds Guards etc.</li> <li>7. Checking of Tower Earthing &amp; Counter poise Earthing.</li> <li>8. Checking of Anti climbing Devices, Number Plates, Danger Plates, Phase Plates, Circuit Plates etc.</li> <li>9. Checking of Conductor Damages, Midspan joints and Repair Sleeves.</li> <li>10. Tree cutting to be done</li> <li>11. Checking of line Hardware Idea about Survey of Transmission line (Preliminary, Detailed and Check survey).</li> </ol> <p><i>II Clear idea about Stringing of Conductor, Earthwire and OPGW.</i></p> <p><i>III Clear idea about line accessories and Line T&amp;P.</i></p> <p><i>III Operating of offline fault locator (Taurus).</i></p>
<b>PRACTICALS ( DURATION:10 DAYS)</b>		
38	Day-47-56	<ol style="list-style-type: none"> <li>1. Recording of Parameters. Identification of parameters in the Meters (MW, MVAR, Voltage, Current, Frequency and etc.)</li> <li>2. Tower/Structure climbing</li> <li>3. Awareness of Safety Rules/Safety equipment.</li> <li>4. L/C and NBFC Process and its importance/differences</li> <li>5. PTR Problems and action taken in emergencies</li> <li>6. General Protection Problem</li> <li>7. Basic Awareness while working with DC/Batteries system in SS</li> <li>8. Basic Awareness about equipment maintenance</li> <li>9. Line Losses Calculations</li> <li>10 Power Factor importance and process of maintaining the unity power factor</li> <li>11. Earth pit importance and Earthing of equipment process</li> <li>12. Isolator/Circuit Breaker operating conditions</li> <li>13. Fault recordings in Relays in trippings/Break downs</li> <li>14. Capacitor Bank operation and its importance</li> <li>15. Basic wiring awareness</li> <li>16. Coordination with staff and officials.</li> <li>17. Basic Awareness regarding the tool box consisting of spanners.</li> <li>18. Awareness of the protection against fire accidents and usage of CO2cylinders, sand buckets, etc.,</li> <li>19. Awareness of First Aid measures.</li> <li>20. Basic concept of patrolling and Pre-Monsoon Inspection of EHT lines</li> <li>21. Basic concepts on hotline techniques.</li> <li>22. Concepts of parameters of transformer oil, transformer oil sample collection methods etc.,</li> <li>23. Basic concepts on transformer oil testing procedures at R&amp;D lab.</li> </ol>



POLE CLIMBING DURATION :10 DAYS)		
39	Day-57-66	Pole climbing
FIELD VISITS (DURATION : 05 DAYS)		
40	Day-67-71	Substation (Conventional and GIS), SLDC, Stores , Kaleshwaram, Construction of lines and substations etc.,
FINAL EXAMS ( DURATION : 02 DAYS)		
41	Day-72,73	1. Theory and practical evaluation 2. Pole climbing

D.PRABHAKAR RAO  
CHAIRMAN & MANAGING DIRECTOR

//Forwarded by Order//

//Assistant Divisional Engineer/TOT-I/CTI//