

Syllabus For Power Transmission Technician (RPL)

Course Name	Power Transmission Technician (RPL)
Sector	CONSTRUCTION
Course Code	CON/2024/PTTH/322
Level	4 (RPL)
Occupation	Power Transmission Technician
Course Duration	Total Duration 50 Hrs (T- 24 , P-26)
Trainees' Entry Qualification	Class 10th Pass with 5 years experience in the relevant field
Trainers Qualification	BE/B-TECH in Electrical Engineering with at least one year working experience in the relevant field.

SYLLABUS:

Module Name	Theory	Practical	Outcome
Module -1 Name: Fundamentals of power transmission Theory: (3 Hrs.) Practical:(3 Hrs.)	1.1 Principles of electricity 1.2 Principles of power transmission 1.3 Common electricity terminology and correct interpretation of the same 1.4 Elements of the power system: transmission line sub-stations etc. 1.5 Sizes and current carrying capacity of different types of conductors 1.6 Overhead transmission system standards. 1.7 Sag on transmission line and its calculations 1.8 String and string efficiency. 1.9 Earthing in power system.	1.1. Identify various types of transmission line components 1.2. Identify various components of transmission line transformer 1.3. Study of line diagrams, maps and circuitry.	The trainee will be able to: 1.1. Know the basics of power system transmission. 1.2. Identify transmission line components & its circuits.
Module -2 Name: Components of transmission line Theory:(7 Hrs.) Practical:(6 Hrs.)	2.1 Different parts of power transformer 2.2 Gas insulated sub-station & its different components. 2.3 HT cable (132kv) & its application. 2.4 Various types of circuits	2.1. Perform pole dismantling and re-setting procedure carried out as per standard procedure. 2.2. Install components on transmission lines including gang operated air brake	The trainee will be able to: 2.1. Know the transmission line components. 2.2. Perform different operations

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	<p>and equipment CT, PT, Lightning Arrester etc.</p> <p>2.5 Different type of circuit breaker used in transmission system & their specifications.</p> <p>2.6 Overhead transmission system apparatus such as regulator and recloser.</p> <p>2.7 Different types of materials and accessories used in power transmission</p> <p>2.8 Conductor accessories: Binding Tape, Binding Wire, P.G. Clamp, T Clamp etc.</p> <p>2.9 ACSR and HTLS conductor</p> <p>2.10 Insulators - Disc insulators, polymer insulators, 70KN, 120KN, Guy etc., cross arms, stay sets, Go switches etc. types of cross arms, etc.</p> <p>2.11 Specification of different components of transmission line, power transformer, switchgear.</p> <p>2.12 Different types of fuse used in transmission line & their specifications.</p>	<p>switches for transmission lines, controlled breakers, ground switches.</p> <p>2.3. HT Cable laying and jointing</p> <p>2.4 Identification of different types of fuse used in transmission line with their specifications.</p>	<p>on transmission line components.</p>
<p>Module -3</p> <p>Name:</p> <p>Troubleshooting and maintenance</p> <p>Theory:(6 Hrs.)</p> <p>Practical:(9 Hrs.)</p>	<p>3.1 Troubleshooting and repair methods for various components of transmission lines</p> <p>3.2 Troubleshooting and repair methods for various components of power transformer</p> <p>3.3 Fault indicators for various components of the transmission lines</p> <p>3.4 Fault indicators for various components of power transformer.</p> <p>3.5 Problems and conditions which render electrical poles or towers in need of maintenance or replacement</p> <p>3.6 Material preparation</p>	<p>3.1. Switch off, isolate, discharge and earth (side) line cables & restore the system again to normal operating conditions.</p> <p>3.2. Dismantling and assembling different parts of power transformer (video presentation)</p> <p>3.3. Dismantling and assembling different parts of transmission line & its components (video presentation)</p> <p>3.4. Replace components such as transformers, CT (Current Transformer), CVT (Capacitive Voltage Transformer), LA (Lightening</p>	<p>The trainee will be able to:</p> <p>3.1. Know the troubleshooting procedure of transmission line components.</p> <p>3.2. Repair & maintenance of transmission line components.</p>

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	<p>methods and techniques to be undertaken, prior to using for testing and maintenance activities</p>	<p>Arrestor), breakers, towers, conductors, disconnects, timber or x-arm, conductors, poles, switches, elbows, terminations and insulators safely</p> <p>3.5. Repair conductor by splicing, jointing, using armor rods, line guards, vibration dampers.</p> <p>3.6. Erect /Replace transmission pole as per standard procedure.</p> <p>3.7. Carry out guy and anchor replacement on various structure types such as – Wood, steel, various lines voltages</p> <p>3.8. Carry out conductor patch and splice repair on single conductor, bundled conductor of various sizes and line voltages</p>	
<p>Module -4 Name: Tools and equipment used in testing & maintenance</p> <p>Theory:(5 Hrs.) Practical:(5 Hrs.)</p>	<p>4.1 Tools and equipment: Plier, Screwdriver, Wrench set, Hammer, Drilling machine, Hacksaw/cutting tools, measuring tape, Pulleys (Force Pulley with sling), Tommy bar, Crimping machine, Round / flat file, Earth rod i.e. discharge rod, leakage current monitoring kit, compression machine, four sheave pulley, wire rope, sagging board, come along clamp etc.</p> <p>Voltmeter, Ammeter, Wattmeter, basic components, Energy Meter (single phase and three phase) etc., Tong testers, Clip-on meter, Multi-meters, Fault indicators, Megger.</p>	<p>4.1. Identify and acquire correct tools, equipment and instruments required for various aspects of repair, maintenance, assessment and inspection of transmission lines and components.</p> <p>4.2. Select and use test equipment such as tong tester, clip-on meter, multimeter, fault indicators, megger and voltmeter to verify fault and integrity.</p>	<p>The trainee will be able to:</p> <p>4.1. Identify different Tools and equipment required for repair & maintenance of transmission line components.</p> <p>4.2. Use of different Tools and equipment required for repair & maintenance of transmission line components.</p>
<p>Module -5 Name: Safety</p>	<p>5.1 Principles and practices of electrical safety</p>	<p>5.1. Methods and parameters to check quality</p>	<p>The trainee will be able to:</p>

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&company regulations Theory:(3 Hrs.) Practical:(3 Hrs.)	5.2 Specific health and safety precautions which must be taken when carrying out Transmission lines maintenance work especially live line or equipment 5.3 standard procedures how to deal with electric shocks and electrocutions to rescue and minimize damage and harm 5.4 Relevant legislation, standards, policies, and procedures followed in the company relevant to own employment and performance conditions. 5.5 Knowing of own job role and area of responsibilities and sources for information pertaining to employment terms, entitlements, job role and responsibilities.	of line components against required quality standards Methods: visual inspection, binoculars, measuring tape, use of instruments 5.2. Safety concerns and precautions to be taken for working in different environmental and hazardous conditions.	5.1. Know electrical safety required while working in power transmission line. 5.2. Know & apply company rules & regulations used for working in power transmission line.

TOOLS AND EQUIPMENTS REQUIRED:

Voltmeter, Ammeter, Wattmeter, basic components, Energy Meter (single phase and three phase) etc., Tong testers, Clip-on meter, Multi-meters, Fault indicators, Megger and voltmeters, Plier, Screwdriver, Wrench set, Hammer, Power Drilling machine, Hacksaw/cutting tools, measuring tape, Crimping machine, discharge rod, leakage current monitoring kit, Binding Tape, Binding Wire, Parallel Groove Clamp, T Clamp etc.; Insulators -Disc, Polymer, Guy etc., Low Tension/High Tension switchgears, cross arms, stay sets, Go switches, cross arms, binding tape, binding wire, Compression machine, four sheave pulley, Wire rope, Sagging board, Come along clamp, Audio visual arrangement etc.

PESONAL PROTECTIVE EQUIPMENTS:

Helmet, Gloves, rubber mat, ladder, neon tester, Leather or asbestos gloves, flame proof aprons, flame proof overalls buttoned to neck, cuff less (without folds) trousers, reinforced footwear, helmets/hard hats, cap and shoulder covers, ear defenders/plugs, safety boots, knee pads, particle masks, glasses/goggles/visors, hand and face shields, residual current devices, various kind of fire extinguishers, First aid kit.