



Introduction to PPE and T&P

Learning Objective

By the end of this session, you will be able to:

- Explain what safety PPE, tools and plants are, their purpose and their uses



Let's Discuss

- What do you mean by PPE?
- What is the equipment under PPE?
- What are their uses?
- Why should we use safety PPE while working?



Introduction

Personal Protection Equipment

PPE are the safety equipment we wear and use for our safety from any injury / accident while working. Hence, these are called “Personal Protective Equipment”.



Safety Tools

Safety tools are those that ensure our safety while carrying out work on power lines.

Personal Protection Equipment

Safety Helmet



Visor

Body Harness



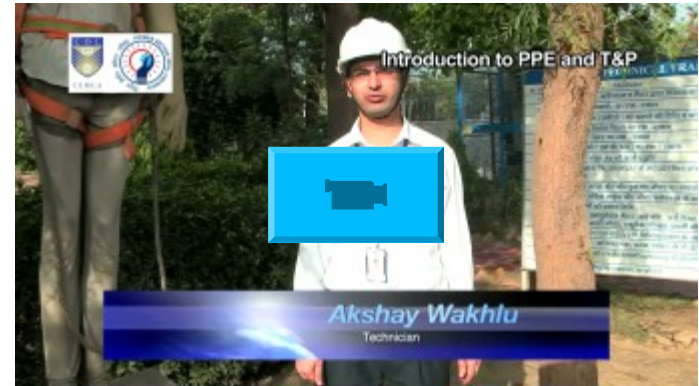
Shoes



Rubber Gloves



Safety Jacket



Safety Helmet



Hard outside



Cushion to
absorb shock



Adjustable fitting

Visor



Protects your face and eyes from sharp tiny objects that fly out while drilling walls.

Safety Harness

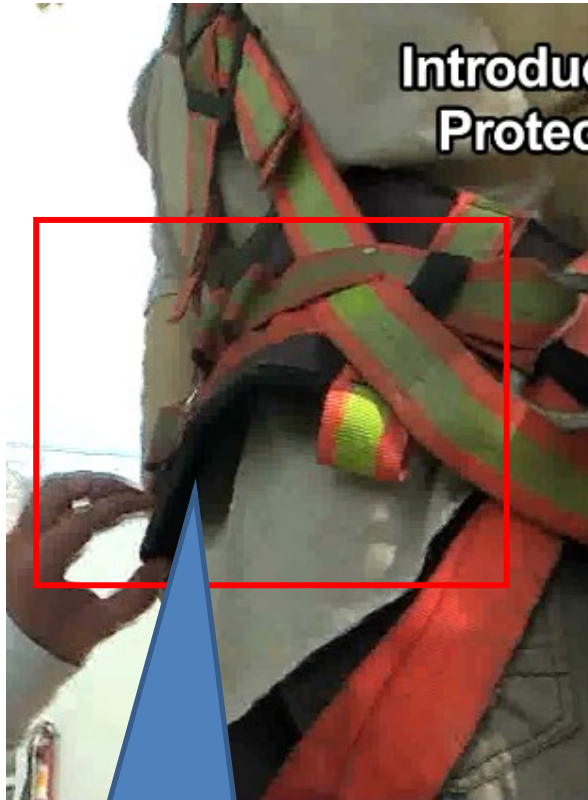


→ Secured on the chest

→ Secured on the waist

→ Secured on the thigh

Safety Harness



Protects waist from spinal injuries



Safety rope

Safety Shoes



Safety shoes that provide protection from electric leakage

**Rubber
Gloves**



**Rubberised
safety gloves**

**Safety
Jacket**



**Fireproof
Jacket**

Tools and Plants



Battery



Line Tester



Discharge Rod

Tools and Plants



Earth Connecting Lead



Earthing Chain



Open-Ended Spanners

Tools and Plants



Screw Drivers



Hacksaw



Adjustable Spanners

Tools and Plants



Hammer

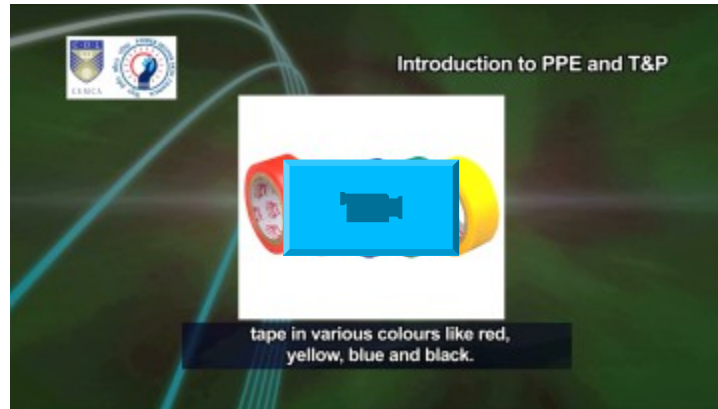


Crimping Machine with Die



Dies for Sockets

Other Tools and Plants



Tapes in various colours



HT Tape



CRC

Other Tools and Plants – Ladders

Fiber Glass



Aluminum

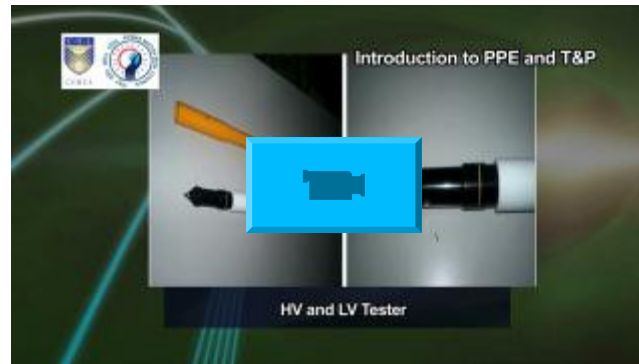


Wooden

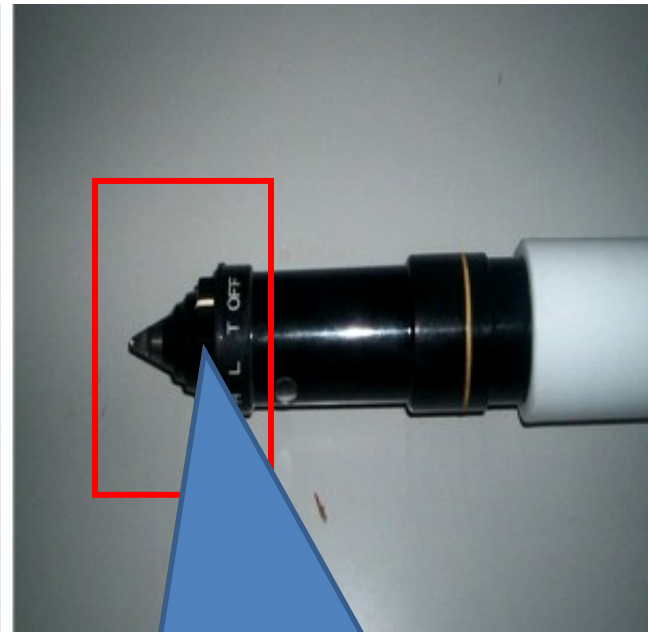


Three different types of ladders

Other Tools and Plants – HV and LV Tester



HV and LV Tester

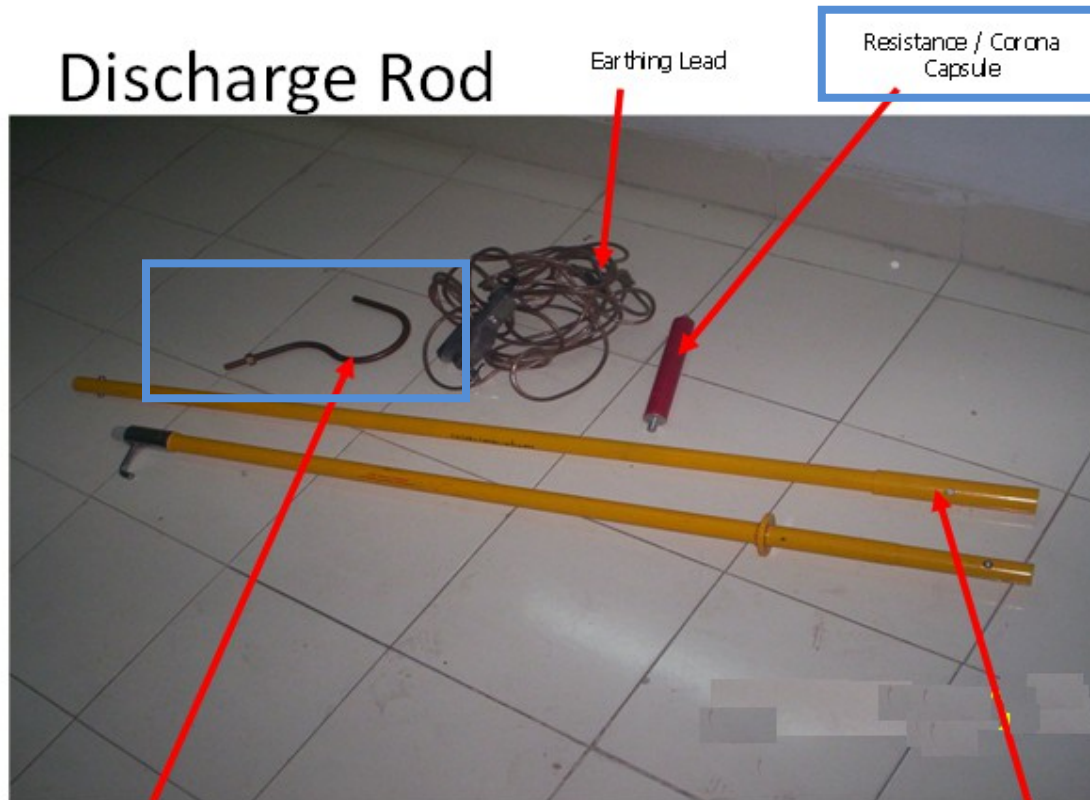


Three different modes operated through battery back-up

Other Tools and Plants – Discharge Rod



Discharge Rod



Earthing Lead

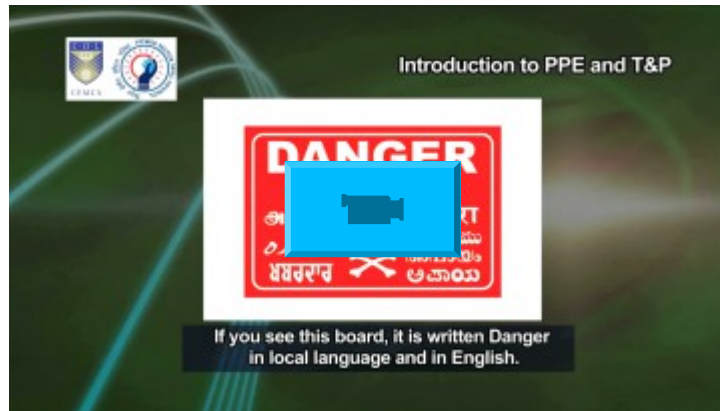
Resistance / Corona Capsule

It is an insulated rod (with an extension rod). It has Resistance / Corona capsule at the end, whose edge is connected with an earthing lead.

Copper hook for discharging in case of O/H lines

Extension Rod

Other Tools and Plants – Danger Board



Status of the line voltage should be mentioned as per requirements of safety under CEA.

Other Tools and Plants – Safety Cone



Safety cones are usually conical markers that are placed on roads / footpaths to redirect traffic safely.

Other Tools and Plants



Combination Pliers

Used for cutting, removing insulation and joining and twisting electric wires / cables on power lines.

Used to open and close nuts and bolts in case a spanner of the right size is not available.



Adjustable Wrench

Other Tools and Plants



Pipe Wrench

It is used to open / close conduits, GI pipes and valves.

It is used to measure the length of wires, cables and space.



Measuring Tape

Other Tools and Plants



Ratchet with Drill Bit

It is used to make holes in wooden cross arms and wooden cleats.

It is a portable electrical power tool used for drilling.



Electric Drilling Machine

Other Tools and Plants



Bench Vice

It is used to grip the object / element on which a job is being done. It has base plate, fixed jaw and moving jaw.

It is a pulley with depressions / projections on the periphery of its wheel, which fits the links of a chain.



Chain Pulley

Other Tools and Plants



Tripod

Tripod is a combination of 3 to 4-metre long, 40 mm GI pipes hinged at the upper end.

It consists of a bar or wheel, with a set of angled teeth that allow motion only in one direction.



Ratchet Device

Other Tools and Plants



Crow Bar

Used to open the wooden slab of a cable drum and for hooking the drum on the wheel while laying cables and conductors.

Pickaxe is used to break the hard soil before digging a trench / pit.



Pickaxe

Other Tools and Plants



Hoe

Used for digging the soil while preparing a cable trench or digging a pit to erect a pole.

Used for digging, lifting and moving materials, such as soil, gravel, snow and sand.



Shovel

Other Tools and Plants



Handcart

Used for local transportation of materials, tools and tackles from the site store to the workplace.

Used for twisting and tightening the end of overhead conductors (ACSRs) over shackle insulators.



Twisting Wrench

Other Tools and Plants

Cable rollers are used for pulling cables. They enable easy movement and flow of the cable being pulled during the laying of cables.

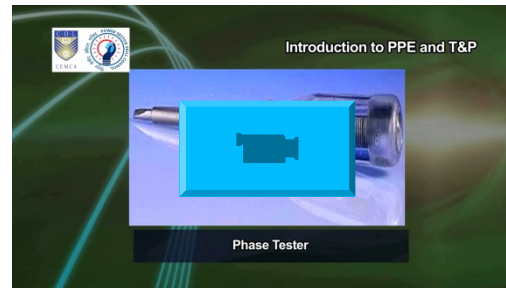


Angle Roller



Straight Roller

Other Tools and Plants



Phase Tester

Used to identify or test the phase/live/hot or positive wire/conductor.

Used for cutting and holding pliers to bend, re-position or snip wires.



Nose Plier

Other Tools and Plants



Electrician's Knife

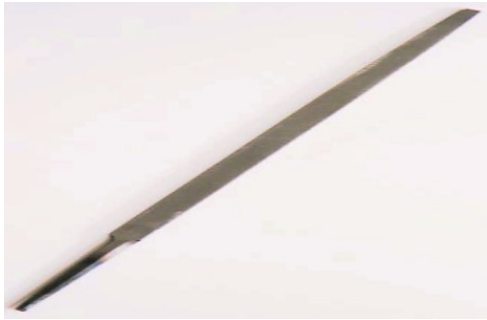
Comprises an integral thick insulation and a substantially flat tube, which serves as a sheath for receiving the cutting blade.

It is a metal tool with a flat, sharp end that is used to cut and shape a solid material.



Chisel

Other Tools and Plants



File

A tool, usually made of hardened steel with cutting ridges, for forming or smoothing surfaces, especially of metal

Used to cut pieces of wood into different shapes.



Wood Saw

Other Tools and Plants



Centre Punch

A metal rod tool with a conical point for making indentations. This allows a drill to make a hole at the same spot without slipping.

Used in overhead systems to catch, grip and sag the conductors.



Line Vice

Other Tools and Plants



Draw Tong / Dags

Draw tong is used to draw an overhead conductor during line erection. It is also used for fitting the pin insulator over newly erected poles and maintaining the sag between lines.

Key Learning Outcomes

- PPE is the safety equipment we wear and use for our safety from any injury / accident while working
- Safety tools ensure a lineman's safety while working on power lines
- The six main items of equipment necessary for linemen to carry out their work are:
 - Safety helmet
 - Visor
 - Full body harness
 - Insulated safety shoes
 - Insulated rubber gloves
 - Safety reflective jacket
- Tools and plants of a lineman include battery, line tester, discharge rod and so on

