



**TUV Rheinland Certified**  
**CEP - Competent Electrical Person**

*Electrical accident free India!*  
*Be a CEP- Competent Electrical Person*

**Competency = Knowledge + Skill + Behaviors**

Duration	
<b>Experienced</b>	<b>Total 4 days – 3 days Classroom &amp; 1 day Skill assessment</b>
<b>Inexperienced:</b>	<b>Total 5 days- 3 days Classroom &amp; 2 days Field training + Skill assessment</b>

## International Certification from TUV Rheinland

**Suitable for**

- Electrical technicians
- Electrical Supervisors
- Wiremen & Line men
- Electrical design Engineers
- Electrical Diploma holders
- Electrical Inspectors
- Electrical Maintenance Engineers



Assessors from TRACEZ have international certification and have more than 20 years experience in assessing & certifying Electrical Competency.

Opportunity to learn the best practices of Electrical Safety from experts having many years international experience.



TRACEZ Training & consultancy Services is one of the pioneer institutions in **Asia- Pacific region** in providing Competence Assessment & Certification activities.



TRACEZ Training & Consultancy Services- Dubai, Oman & India. [www.tracezglobal.com](http://www.tracezglobal.com)

Tracez India - 4<sup>th</sup> floor, Asset tower, Tripunithura, Kerala- Phone: 0484 2942569, 9995338853, 9371642282

## Introduction

All electrical systems have the potential to cause harm. People working on electrical equipment, machinery or installations must have the required level of competency. Most of the electrical accidents are happening due to the lack of competency of the electrical personnel. The level of competence required to do a task is dependent upon the complexity of that task and the amount of knowledge, level of skill and behaviours required.

Employees must be trained and instructed to ensure that they understand the safety procedures which are relevant to their work and must work in accordance with any instructions or rules laid down by their employer and directed at ensuring safety. Major electrical activities that have very high hazard potential includes isolation, de-isolation, switching on, commissioning & startup, performance testing and maintenance. Skills to identify the electrical hazards and analyse the risks and using the correct tools & procedures are essential for safe handling of electrical systems.

**Tracez Training Services India** in coordination with **TUV Rheinland** offers Training, Assessment & Certification of electrical personnel from all industries and levels. Candidates who complete the Skill, Knowledge and Behavioral assessment, will be awarded CEP certification directly from TUV Rheinland.

The CEP program includes 2 days classroom based training followed by knowledge assessment and those who successfully complete the knowledge assessment will undergo 1 day skill & behavior assessment.

Assessment modules are developed in line with international standards of Electrical Competency Assessment systems that followed by major organisations. Case studies, Exercises and Group assignments will be used to enhance the delivery and also to promote participants involvement.

## Learning Objectives

**The learning objectives of the CEP program includes but not limited to the following:**

- Understanding of major hazards and its consequences while executing various routine and non-routine electrical tasks.
- Understand the procedures and develop enhanced capability to isolate, de-isolate, commission, start up, switch ON & OFF electrical systems.
- Understand the details of permits/authorisations required before executing work on electrical systems.
- Understand the procedures and achieve capability to work safely on electrical equipments in Hazardous environment.
- Detailed understanding on hazards of Power generation, transmission & distribution systems.
- Capability to handle electrical emergencies, if any happens during electrical Operations & maintenance.
- Enhanced safety behaviours at work by Identifying and applying safe work procedures & practices.
- Capability to identify and analyse electrical hazards specific to each activity.
- Understand the roles & responsibilities of electrical persons with Design, Construction, Generation & Distribution, Operating & Maintaining companies.
- Understand the right types of tools and PPE required for each specific electrical activity.
- Learn the basic first aid for electrical accidents.
- Understand the safe procedures for using power tools
- Understand the procedures while working near/with overhead power lines, etc.

# Classroom Training & Knowledge Assessment

- **Introduction,**
- **Glossary & Terminologies**
- **Definitions,**
- **General Electrical SAFETY ,**
- **Basic Electrical Rules**
- **Power Systems**
- **Hazards of Electricity**
  - Case studies
  - Electrical accidents
  - First Aid for Electrical accidents
- **Electrical drawings & Control circuits**
- **Inspection & testing of electrical systems**
- **Electrical Equipment/Systems industries**
  - Transformers
  - Motors HP/LP
  - Switch gears & Protection relays
  - Generators
  - UPS & Battery
  - VFDs- Variable Frequency Drives
  - Electrical measuring instruments
- **Competent Electrical Person - CEP**
  - Qualifications & level of experience
  - Knowledge, Skills & Behaviours
  - Roles & Responsibilities
- **Switching Operations**
- **LV apparatus- Live line testing**
- **HV apparatus - Testing**
- Approach to exposed Live voltage systems**
  - Safety Distances
  - Approach of persons
  - Testing of conductors
  - Work near live conductors
- **Isolations & de-isolations**
  - Key Safe & Safety Padlocks
  - LOTO- Lockout/Tag out

- **Electrical Safety Rules & Procedures**
  - Isolation for maintenance
  - De-isolation after maintenance
  - Switching On
  - Commissioning
  - Access to HV enclosures and apparatus
  - Climbing towers, Wood and Cement poles
  - Permission for switching
  - Conflicting activities
  - Working or testing LV apparatus
- **Earthing**
  - Circuit Main Earth - CME
  - Additional Earth - AE
  - LV earth
  - Portable Earthing
- **Electrical Documents.**
  - Issue & Control
  - Electrical Permit to work-EPTW
  - Electrical Isolation certificates.
  - Excavation Certificates
- **Precautions for specific activities**
  - Work on double circuit lines- with one circuit live
  - Work in the vicinity of buried HV cables
  - Work on HV transformers
  - Work on HV Switchgears
  - Work in substations with exposed HV Conductors
  - Testing HV motor circuits
  - Working on LV switch gears
  - Work on HV static capacitors
- **Live Line Working and Washing.**
- **Contraventions & Objections Handling**
- **Discussions & Clarification**
- **Assessment & validation**
- **Feedback & Close out**

## Course structure & Mode of Delivery

- Interactive training sessions /involvement of all participants
- High quality training material including PPT, Handout, Videos, case studies, work assignments, etc. will be used for developing the required competencies.
- Field visits with Practical activity- prepare switching program
- Skill & Behavioural Assessment
- **40%** - Classroom lecture with high quality graphics and discussion involving all participants
- **20%** - Videos & Practical Activities / group assignments in the classroom
- **40%** - Scenarios , Case studies & Assessments

### Knowledge Assessment

All participants will be provided with a “**Successfully completed course**” certificate on satisfying the following conditions.

- 100% attendance in the class
- Submit all the course work and assignments
- Successful completion of the **End of course Assessment- 70% minimum**

### Skill & Behavioral Assessment

- Competency is the state of having the required knowledge, skill & behaviors. Those candidates who successfully complete the knowledge assessment will undergo skill & behavioral assessment.

### Assessment Standards

#### **TRZ-E 03 - Safe working on LV & HV electrical systems**

Following are the main Units in the assessment standard **TRZ-E 03**.

- |                |   |
|----------------|---|
| <b>Unit 1:</b> | <b>TRZ-E 03.1:</b> Manage the issue, execution & cancellation of all types of Electrical documents. |
| <b>Unit 2:</b> | <b>TRZ-E 03.2:</b> Isolate High Voltage electrical systems  |
| <b>Unit 3:</b> | <b>TRZ-E 03.3:</b> De-isolate High Voltage electrical system  |
| <b>Unit 4:</b> | <b>TRZ-E 03.4:</b> Switch ON High Voltage electrical Systems  |
| <b>Unit 5:</b> | <b>TRZ-E 03.5:</b> Monitor & maintain Health and Safety   |
| <b>Unit 6:</b> | <b>TRZ-E 03.6:</b> Establish communication & effective working relationship                         |

Each unit will have elements giving details of assessment standards .

### CEP Certification

Both the knowledge, Skill & behavioral assessment reports will be compiled and submitted for internal verification. The assessment reports will be verified and reviewed by TUV Assessors and all candidates who successfully complete both knowledge and skill assessments will be awarded the CEP certification by TUV Rheinland

**Name: Jayaraman**



## **Technical Qualifications**

- **Electrical Engineering**
- **Certified Assessor**
- **Certified Trainer**

## **Job roles**

- **Electrical Maintenance Engineer- ( BPCL- Refinery) – 10 years**
- **Senior Electrical Trainer - BPCL Refinery India- 12 years**
- **Electrical Project Manager – BPCL Refinery – 5 years**
- **Deputy Director / Senior Professor- AISAT Engineering College – 5 years**

Mr. Jayaraman Has more than 30 years of experience in Commissioning, Operation, Maintenance & Training activities of industrial electrical equipment & systems.

Highly specialised in training on Electrical Safety & Competence Assessment

He is also developed and delivered many training on **Electrical Safety, Electrical drawings & Control Circuits, Electrical Protection relays, Commissioning & Start up of electrical equipment/systems, Operation and Maintenance of substations, etc.**

Mr Jayaraman is also holding the General Secretary of **SEEM India,** ( Society of Energy Engineers and Managers)

\*\*\*\*\*

Name: **Prince . P.K**  
Education: **Electrical Engineer**  
Experience: **Total 30 years**  
Middle East: **20 years with PDO, OXY, ADCO Abu Dhabi,**  
Positions Held: **Electrical Project Engineer, Senior Electrical Trainer,  
Certified Electrical Trainer & Competence Assessor.  
Certified Internal verifier**



- **Many years experience in the middle east in training , assessment & certification activities on electrical safety .**
- **Qualified to carryout Competence Assessment and support Skill Assessment for Electrical Authorization**

