

Construction Site Temporary Electrical System Design Course

27 June – 1 July 2027
Johannesburg

AGILE LEADERS
Training Center

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Construction Site Temporary Electrical System Design Course

Ref: 1900_241536 **Date:** 27 June – 1 July 2027 **Location:** Johannesburg **Fees:** 6000 Euro

Overview

Construction Site Temporary Electrical System Design Course is a one-week course for electrical engineers, site engineers, construction managers, temporary works coordinators, and supervisors who need a phased temporary power design package. Participants develop load schedules, source selection, distribution layouts, cable calculations, earthing, protection, lighting, inspection, and change records. The course addresses shifting site demands through controlled design stages. Agile Leaders Training Center delivers this construction site temporary power design course.

Who Should Attend

- Electrical teams responsible for temporary supply design and calculations
- Site teams responsible for power access, routing, and phased changes
- Construction teams responsible for coordinating temporary works
- Supervision teams responsible for installation checks and records
- Maintenance teams responsible for temporary-system integrity

The course assumes participants can read single-line diagrams and perform basic electrical calculations; it leaves out permanent building services design, live working, and statutory approval.

Departments and Industries

The course supports temporary electrical distribution across construction and engineering operations.

- Building and infrastructure construction
- Industrial plant expansion and shutdown projects
- Utilities, water, and energy projects
- Electrical engineering and temporary works departments
- Site operations, supervision, and maintenance departments

Learning Objectives

By the end of this course, participants will be able to:

- Build phased load schedules and demand estimates
- Evaluate generator, transformer, and supply options
- Apply cable sizing and voltage-drop methods
- Analyze fault levels and protection coordination
- Design earthing, bonding, and site lighting

- Evaluate inspection evidence and design changes

Course Agenda

Day 1: Design Basis and Site Load Planning

- IEC 60364-7-704 Scope and Temporary Installation Design Basis
- Construction Phase Map and Electrical Demand Register
- Connected Load, Diversity, and Maximum Demand Worksheet
- Supply Capacity Survey and Existing-Service Interface Checklist
- Temporary Power Design Criteria and Assumption Log

Day 2: Sources and Distribution Architecture

- Generator and Transformer Capacity Selection Method
- Single-Line Diagram for Main and Subdistribution Boards
- Reduced Low-Voltage and Standard Supply Allocation Matrix
- Construction-Site Assembly and Socket Selection Schedule
- Phased Board Relocation and Expansion Layout

Day 3: Cable and Earthing Calculations

- Cable Current Capacity and Derating Calculation Sheet
- Voltage-Drop and Starting-Current Assessment Method
- Short-Circuit Level and Disconnection-Time Calculation
- Earthing Arrangement and Protective Bonding Diagram
- Cable Routing and Mechanical Protection Plan

Day 4: Protection, Lighting, and Verification

- Protective Device Coordination and Selectivity Study
- Residual Current Device Allocation and Test Schedule
- Temporary Site and Escape Lighting Layout
- Inspection, Testing, and Energization Checklist
- Design Change, Defect, and Handover Register

Day 5: Temporary Power Design Practice

- Exercise: Build a Phased Construction Load Schedule
- Exercise: Select Sources and Draw the Distribution Single Line
- Exercise: Size Cables and Verify Voltage Drop
- Exercise: Coordinate Protection and Check Earthing
- Capstone Exercise: Produce a Temporary Electrical Design Package

Practical Exercises

The course uses suggested activities to convert construction requirements into traceable temporary electrical design records.

- Suggested activity: consolidate plant, welfare, lighting, and tool loads by construction phase
- Suggested activity: compare generator and transformer options against demand and fault constraints
- Suggested activity: calculate cable size, voltage drop, fault duty, and protective-device settings
- Suggested activity: revise a distribution layout after a simulated site-phase change

FAQs

Who suits Construction Site Temporary Electrical System Design and what does it assume?

It suits electrical, site, construction, temporary works, supervision, and maintenance personnel who can interpret single-line diagrams and perform basic electrical calculations. It does not cover permanent building services or live working.

How does construction site temporary power design differ from permanent building electrical design?

Temporary power design addresses changing loads, movable distribution, harsh site conditions, staged relocation, inspection, and removal, while permanent design addresses the completed facility and its long-term services.

How is a construction site temporary electrical load schedule developed?

A load schedule groups plant, tools, welfare facilities, and lighting by phase, then applies operating patterns and demand assumptions to establish source and distribution capacity.

What should a construction site temporary power single-line diagram show?

A temporary power single-line diagram shows sources, transformers, main and subdistribution boards, feeders, protective devices, earthing arrangements, circuit ratings, and planned phase changes.

How are cable protection and routing addressed in temporary electrical design?

Cable routing separates vulnerable paths from traffic and work zones, applies mechanical protection where exposure remains, and records lengths, supports, crossings, environmental conditions, and inspection access.

Conclusion

Participants take back a Temporary Electrical Design Package containing the load schedule, single-line diagram, calculations, layouts, protection study, and verification records. The package improves coordination as construction phases and power demands change. It supports controlled installation and handover without replacing site authorization or competent-person duties.