



Centre for Industrial Solutions and Advanced Training (CISAT)

A Global Training Service and Industrial Consultancy Provider

An ISO 9001:2015 Certified

Three Days Nonresidential Training Program on
**Advanced Protection Practices for
Grid-Connected Solar Power Plants:
From Basics to Coordination**

During 11-13th May 2026 at Nagpur for Solar Industry

Corporate Office (CISAT):

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DAY 1

Session Details	Session Focus	Detailed Contents
First Half <ul style="list-style-type: none">• Session I• Session II	Protection Basics + Solar Plant Protection Overview	<ul style="list-style-type: none">• Role of protection in grid-connected systems• Protection philosophy• Zones of protection• CT/PT fundamentals• Introduction to solar plant electrical system• Protection requirements in solar plants• Challenges in RE systems
Second Half <ul style="list-style-type: none">• Session III• Session IV	Fault Level Calculations + Short Circuit Strength (SCR) + Practical Issues	<ul style="list-style-type: none">• Types of faults• Short circuit current calculation basics• Per unit system• Fault level calculations• Contribution from: – Grid – Solar inverter• Concept of Short Circuit Ratio (SCR)• Weak grid vs strong grid behavior• Impact of solar penetration on fault level



DAY 2

Session Details	Session Focus	Detailed Contents
First Half <ul style="list-style-type: none">• Session I• Session II	Overcurrent & Earth Fault Protection + Setting Calculations	<ul style="list-style-type: none">• Principle of Overcurrent Protection• Types: Instantaneous, Definite Time, IDMT• Relay characteristics (NI, VI, EI curves)• Plug setting (PS), Time Multiplier Setting (TMS)• Setting calculations• Directional Protection
Second Half <ul style="list-style-type: none">• Session III• Session IV	Transmission Line Protection (Solar Evacuation Lines)	<ul style="list-style-type: none">• Distance protection fundamentals• Impedance measurement principle• Types: Impedance, Reactance, Mho relay• Zone protection (Zone-1, Zone-2, Zone-3)• Distance Protection schemes & Features



DAY 3

Session Details	Session Focus	Detailed Contents
First Half <ul style="list-style-type: none"> • Session I • Session II 	Transformer Protection + Busbar Protection	Transformer Protection: <ul style="list-style-type: none"> • Differential protection principle • Differential protection Issues and Features • Restricted Earth Fault (REF) Busbar Protection Basics: <ul style="list-style-type: none"> • High impedance scheme • Low impedance scheme
Second Half <ul style="list-style-type: none"> • Session III • Session IV 	Relay Coordination (Final Integration Session)	<ul style="list-style-type: none"> • Concept of relay coordination • Time grading & current grading • Coordination between: – Solar feeder relays – Transformer relays – Grid substation relays • Coordination margins

- ❖ HandsON on testing breaker Closing & Tripping, Earth Fault Relay, Over current relay.
- ❖ We shall try Hands-ON, on differential relay if available.



Registration Details

Dates of the program:	11-13th May 2026 at Nagpur.
Nonresidential Participation Fees:	INR 40,000.00 (plus GST@18%); Includes training material, Tea, Lunch & snacks).
Payment Terms:	100% Advance before starting the programme.
Venue:	Nagpur (KEC International Training Centre, Butibori)
Payment:	ECS/NEFT/DD in favor of “ Centre for Industrial Solutions and Advanced Training ”. Account No: 9220 200 3610 6986 Bank: Axis Bank, Katol Road, Friends Colony, Nagpur-440013, MS, India; IFSC Code: UTIB0002911; MICR Code 440211015, GSTN: 27ABBPW5589J1ZV. PAN No: ABBPW5589J SAC Code 99-9293; State Code 27.



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"Empowerment through Knowledge"

For more details and your requirement please Contact:

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"A Complete Consultancy and Industrial Solution under One roof"

Registration Details:

1. Udyam Registration Certificate No: UDYAM-MH-20-0026894
2. MSME no: MH20E0054775
3. GST Registration: 27ABBPW5589J1ZV



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TECHNICAL COMPETENCIES & INDUSTRIAL ADVISORY SERVICES

- Hazop Study, LOPA
- Project feasibility report

CONTROL PANEL MANUFACTURING AND SUPPLY

NDT CONSULTANCY, SERVICES, TRAINING & CERTIFICATION

ARC FLASH HAZARD, PROTECTION, LOAD FLOW ANALYSIS, RELAY SETTING STUDY

VIBRATION ANALYSIS CONSULTANCY SERVICES



1 COMPLETE CORPORATE TRAINING, OD, CONSULTANCY & MENTORING

- Complete Training Solution, Content Development
- Skill mapping, Assessment, Certification
- 5S, Six Sigma, TPM, TQM Training & Implementation

2 SOFTWARE DEVELOPMENT

- Complete HR & Talent management Software: "HRAutoSoft"
- LMS, PMS

3 ENVIRONMENT AUDIT, COMPLIANCE & TRAINING SERVICES

- Environment Management Plan
- Hazardous Waste Management, Waste Audit, Govt. Liaisoning

4 SAFETY TRAINING & AUDIT, ENERGY AUDITS, AND ASSESSMENT

Metal, Power, O&G, Chemical, Engineering, Manufacturing, Cement, Pharma Industries