



Centre for Industrial Solutions and Advanced Training

**4 DAYS TRAINING PROGRAM ON  
SUBSTATION ENGINEERING, DESIGN,  
HV/MV TESTING OF ELECTRICAL  
EQUIPMENT'S, COMMISSIONING,  
MAINTENANCE & CBM  
(765KV/400KV/220/132/66KV/33KV)  
25-28 Feb 2019, Nagpur, India**





# Centre For Industrial Solution and Advanced Training

AN ISO 9001:2015 CERTIFIED

(Technical- Electrical/Mechanical/Automation/Chemical, Behavioral & Soft Skill, Safety, Business Excellence, Safety & Energy Audit)

"A complete Training Solution Under One roof"







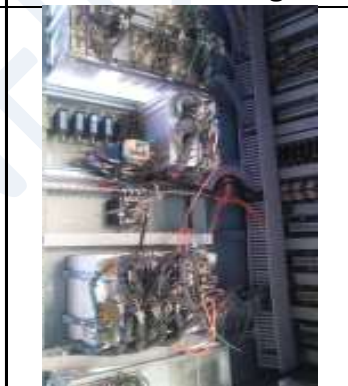

## 4 Days Non-residential Training Program (With Hands ON Facility) on **4 DAYS TRAINING PROGRAM ON SUBSTATION ENGINEERING, DESIGN, HV/MV TESTING OF ELECTRICAL EQUIPMENT'S, COMMISSIONING, MAINTENANCE & CBM (765KV/400KV/220/132/66KV/33KV)**

Applicable International standards (IEC, IEEE, IS) & specifications only for Electrical Engineers 25-28 Feb 2019 at Nagpur

### Who should attend:

Electrical practicing Engineer/ Manager / Substation Supervisor, Application Engineer, Design Engineer, Maintenance Engineer.

### HAND ON DURING TRAINING: VALUE ADDITION AND SPECIAL FEATURE:

Sub Station Visit	Transformer Testing	DC Earth Fault Locator	Relay Testing Facility
			
SF6 CB Demonstration	SF6 Testing Facility	Internal Wiring	SAS System
			

### Hands On Facility available:

1. 440KV/220KV; Substation; One and Half Breaker system, All advanced system.
2. SCADA implementation and control
3. Numerical Relay and details (Differential Protection, Distance Protection etc)
4. CT/PT/LA complete testing
5. SFRA Testing Kit and Facility, Tan Delta testing.
6. PLCC and other communication system with Optical Fiber controlled data.
7. Transformer Testing including SFRA
8. Circuit Breaker (SF6) Demonstration and Testing
9. Relay (Including numerical) Complete testing facility
10. DC Earth Fault Location, Advanced Meggar etc and many more..

Branch Office: A-306, Creative Homes Apartments, Anupam Society, Katol Road, Nagpur-440013, MS, India.

Web: [www.cisat.co.in](http://www.cisat.co.in); Email: [vikas@cisat.co.in](mailto:vikas@cisat.co.in); Contact: +91- 7709012815 (Branches: Thane/Pune/Nagpur/Bhilai/Wardha)

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**Prerequisite:** Basic knowledge of Electrical Engineering and substation.

**Objective:** Why you should attend the program? Check below. If you feel the answer is no, you must do attend. It's our objective to make you knowledgeable.

- ❖ I can design substation by my own?
- ❖ I can do wiring and connections for every elements of substation.
- ❖ I can do set relay and make coordination by own.
- ❖ I knew the Engineering and engineering concepts behind substation and equipment's used.
- ❖ I can do selection & testing of all Electrical equipment's, can check polarities of all.
- ❖ I knew the steps taken on operation of BUS Bar and LBB protection.
- ❖ I am certain about reactive power compensation requirements.
- ❖ I knew the engineering significance for Vector group.
- ❖ I can do make parallel connections by own.
- ❖ I knew about tertiary windings.
- ❖ I can do carry out troubleshooting work of CB by own.

## Delivery Methodology:

- Introduction and Objective Setting
- Pre and Post Test,
- Knowledge Presentations,
- Hands On as per actual requirement
- Assignments & Exercise,
- Case Study,
- Discussion
- Feedback and Assessment

## Course Content & Delivery Schedule:

**4 Days Training Program on Substation Engineering, Design, HV/MV Testing of Electrical Equipment's, Commissioning, Maint & CBM**

Day 1 (25th Feb 2019)		Day 2 (26th Feb 2019)	
Sr no	Session 1: 9:30 AM to 13:00 PM	Session 1: 9:30 AM to 13:00 PM	
1	Introduction to substation & Overview	Testing and Commissioning	
2	Design Criteria and Consideration for 765/400/220 KV substation	Transformer, CB, CT & PT, Name Plate reading & connections	
3	Parameter Calculation	Function of all parts of Power Transformer: Overview	
4	Selection of substation Equipments- CT/PT/LA/CB/CP/Isolator	Measuring Devices; Vector groups & Connections (Star & Delta)	

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5	Position, Layout and SLD	% Impedance; Efficiency; Losses; Regulation; Acceptance & Commissioning Test
	<b>Lunch Time 13:00 -14:00</b>	<b>Lunch Time 13:00 -14:00</b>
6	Sectional Views, Clearances, BUS arrangement and Applicable standards	Transformer Testing: Oil; Silica; Winding; Heating; Cooling etc. HIPOT Testing, Tan Delta Test
7	AIS & GIS Substation	Transformer Installation, commissioning: Do's and Don'ts
8	Earth Mat design	IR, PI, Dielectric absorption, High Pot, Tan delta, DC winding
9	Introduction to switchgear- Design & Selection	Various Fault Detection & regular testing of Transformer
10	Test during commissioning, O&M- Overview	resistance, s/c , TTR, Magnetic Balance Tests.
11	Discussion; Q&A; Review of Days take away	Harmonics; Voltage Fluctuation control and Effects
<b>Day 3 (27th Feb 2019)</b>		
	<b>Hand ON related to substation Equipments</b>	Site Testing, Pre commissioning Testing of SS equipment's
1	Visit to Substation, explanation in details	Commissioning of Substation; Procedure and discussion; Wiring connections etc
2	One and Half circuit breaker system-Demonstration	Overview of Basics of Protection (Line, transformer, LBB, Reactor)
3	Testing of Transformer: Ratio, Magnetic Balance test etc.	Reactor, LA, Insulation Coordination
	Breather and conservator	Control room requirement; Emergency Power-DG Sets
	<b>Lunch Time 13:00 -14:00</b>	<b>Lunch Time 13:00 -14:00</b>
4	CT/PT Testing; Knee Point Volt and other tests, IR Test	Bay Control room concepts
5	Relay testing (Conventional and numerical)	Control and Relay panels, Battery and Battery Charger
6	Connection details	SCADA for substation
7	SCADA- Understanding, control	Communication (Data, OPGW)
9	PLCC Communication	Multiplexer/PLCC
10	SFRA Testing	CBM, NDT and RLA of Transformer
11	Tan Delta testing	Q&A, Case studies
		Valedictory and Certificate Distribution

## Registration Details

**Trainer:** Trainer's having Industrial work experience of more than 30+ Years and conducted many programs. They are internationally recognized.

### Registration Details:

**Dates of the program:** 25-28 Feb 2019 at Nagpur (4 Days).

**Nonresidential Participation fees:** INR 34500/- per delegate + GST@18% (Including Tea, Lunch, Snacks and Course Material only).

**Payment:** ECS/NEFT/DD in favor of "Centre for Industrial Solutions and Advanced Training" Payable at Nagpur, Maharashtra, India (For NEFT/ECS).

Account No: 0509102000003353 Bank: IDBI, Wardha- 442001, MS, India; IFSC Code: IBKL0000509; Swift Code IBKLINBBNGP; MICR Code 442259001. GST Code: 27ABBPW5589J1ZV; SAC Code 99-9293; State Code 27; PAN No: ABBPW5589J.

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**Venue:** Nagpur/KEC, International Training Centre, Butibori, Nagpur, Maharashtra, India ( Butibori Industrial area, 18 KM from Nagpur Airport towards Hyderabad highway (Wardha Road))

**For Registration, please do contact to,**

*We prefer on line Registration through our web [www.cisat.co.in](http://www.cisat.co.in).*

Vikas - 00-91-8669546332; 7709012815; [vikas@cisat.co.in](mailto:vikas@cisat.co.in); [cisat.nagpur@gmail.com](mailto:cisat.nagpur@gmail.com);

With Best Regards & Thanks,

Mrs. Rupali, Director - Business Development.

**Centre For Industrial Solution and Advanced Training**

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*"Your Business Partner for Employee Development- Knowledge Always Leads"*

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