

Centre for Industrial Solution and Advanced Training

**TRAINING PROGRAM ON  
SUBSTATION, SUBSTATION  
EQUIPMENT'S: O&M, TESTING,  
PROTECTION AND ADVANCED  
CONDITION BASED MONITORING**

**24-26 July 2017, Nagpur, India**





---

**3 Days Residential Training Program on**  
**Substation, Substation Equipment's: O&M, Testing,**  
**Protection and Advanced Condition Based Monitoring**  
**As per standards & specifications 24-26 July 2017, Nagpur.**

**Course Objective:**

The participants will be well informed about substation, substation equipment's, design, Faults, O&M techniques, also learn about various diagnostic Testing methods like: Offline & Online testing and monitoring techniques, high level test like Motor Current and Torque Signature, Acoustic Emission, Surge Testing (IEEE522), Tan Delta & Capacitance Measurement, Partial Discharge Measurement, Dielectric Response Analysis. The latest VLF (Very Low Frequency) HIPOT will be discussed in comparison to DC HIPOT and AC HIPOT Testing as per IEEE 433.

**Course Content:**

**Introduction to Substation & substation equipment's: Design, Specifications and Standards**

**1. Power Cable:**

- Fundamentals of cable construction.
- Commissioning testing / acceptance tests at site
- Diagnostic testing
  - a. Insulation resistance test
  - b. Polarization Index
  - c. Tan delta and capacitance measurement
  - d. Partial discharge Measurement
  - e. Low frequency testing; HIPOT Testing

**2. Power Transformers**

- Fundamentals of Power transformers & Design.
- Various Acceptance tests for power Transformer.
- Various diagnostic testing online and offline
- O&M techniques, Online and offline testing and Condition based monitoring

**3. Advanced CBM:**

- Online testing for condition monitoring, methods and Advantages.
- Offline testing of electrical Equipment's
- Interpretation of the test Results

**4. Circuit Breaker, Isolator, LA, Instrument Transformer (CVT, CT /PT), Relay, Control Panels**

**5. Various other CBM Techniques (Informative)**

- a. Current Signature Analysis
- b. Thermography



- c. Vibration Analysis
- d. eddy Current & Magnetic Particle
- d. Case Studies & Discussion

### Who can attend:

Electrical / Manager / Supervisor, Application Engineer, Condition Monitoring Engineer, Design Engineer, Maintenance Engineer /Manager/Supervisor/Reliability Engineer/Manager/ Supervisor

**Prerequisite:** Basic knowledge of Electrical Equipment's and experience in maintenance will be helpful.

### Delivery Methodology:

- Introduction and Objective Setting
- Pre and Post Test,
- Knowledge Presentations,
- Assignments & Exercise,
- Hands on (High Voltage testing, partial Discharge, Insulation etc)
- site visit and Case Study,
- Model display,
- Feedback and Assessment

### About CISAT:

Centre For Industrial Solution and Advanced Training is an ISO 9002:2015 certified Training Provider Company managed by professionals with rich Industry and teaching experience. Company involves in professional trainings and been providing training on various topics of Industry interest through various experts associated. More details are available on [www.cisat.co.in](http://www.cisat.co.in).

### Training Facility:

CISAT has International level Training Centre Located in a learning atmosphere at Butibori, Nagpur (Maharashtra Region), India. It is equipped with training facility for up to 40 participants fully air conditioned, LCD Projector, Audio-video, White Board and all facility required for natural activities. It also has facility for Lodging and Boarding in a campus.

CISAT have facilities for practical's on various topics such as,

1. Testing of Electrical Equipment's
2. Electrical Drives
3. PLC (Allen Bradley/Siemens)
4. SCADA (Allen Bradley/Siemens)
5. Instrumentation (Sensors, Transducers, Meters etc)
6. Computer Lab with required software support
7. Electronics KITs for Experiments'.



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

## Centre For Industrial Solution and Advanced Training

AN ISO 9001:2008 CERTIFIED

“A complete Training Solution Under One roof”

We have support for various Industries for onsite Training as well Industrial visits as required.

### About Nagpur:

Nagpur, situated in a central part of India is a historical city. It is the second greenest city of India and a winter capital of Maharashtra. Nagpur is famous for its oranges, hence called as Orange City. Lots of places are of interest and visit. It is rich with natural gift and surrounded by Forest, Rivers, Dams and hill station like Chikhaldara. It has three Tiger reserves Pench, Navegaon and Tadoba within a limit of 150 KMs.

Nagpur itself rich in terms of picnic spots like Futala Lake, Gandhisagar Lake, Maharajbagh Zoo, Various historical temples, Fort, botanical Garden, Raman Science Park, etc.

**Trainer:** Trainer having Industrial work experience of more than 30 Years and conducted many program. He is internationally recognized.

### Registration Details:

**Dates of the program:** 24-26 July 2017 (3 Days).

**Participation fees:** INR 30000/- per delegate. + ST (Including Lodging, Boarding, Tea, Lunch, Snacks and Course Material). Pickup point 6:00 PM at Nagpur or 6:00 AM on 24<sup>th</sup> July. Program will be 120 KM from Nagpur. Do call for more information.

**Payment:** ECS/NEFT/DD in favor of “Centre for Industrial Solution 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 IBKLINBB007; MICR Code 000259000.

**Venue:** KEC, International Training Centre, Butibori, Nagpur, Maharashtra, India

*For Registration, please do contact to,*

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

Mrs. Rupali - 00-91-7709012815; [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

**Web:** [www.cisat.co.in](http://www.cisat.co.in); **Email:** [cisat.nagpur@gmail.com](mailto:cisat.nagpur@gmail.com) ; Contact: +91- 7709012815

*“Your Business Partner for Employee Development- Knowledge Always Leads”*

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

**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)

**(Your partner for Industrial solution & Empowerment of Human Capital)**