



## POWER AND ENERGY MANAGEMENT IN INDUSTRIAL UTILITIES & POWER FACTOR IMPROVEMENT TO IMPROVE ENERGY EFFICIENCY

### ENERGY AUDITING AND MANAGEMENT

(27-29 November 2017 at Nagpur)

#### Introduction:

Electrical utilities such as Pumps, Fans, Blowers, Compressors, Cooling towers, Chillers, Lighting systems etc are major consumer of electrical energy in any industry .

Government of India under "Urza daksh Bharat, Unnat bharat plan" has set a 11 point action plan to reduce energy intensity between 2016 and 2019 by 7% and triple the energy savings .

As per study report by **Bureau of energy efficiency**, GOI, by there is a huge potential of saving by 20-30% energy by implementing suitable measures. For example just by maintaining a optimum L/G ratio the energy consumption in cooling tower can be reduced by 15-20% .

The aim of subject training is to provide basic hands ON training to participants on various means and measures for energy saving in various electrical utilities .

3 days duration of the training comprising of audio visual training to participants on energy efficiency of various electrical utilities eg Compressors, Cooling towers, pumping systems etc . There shall also be a group activity to carry out energy audit, with the aim to find out energy leakages, of plant equipments followed by discussions . Detailed contents to be covered are mentioned below. Where as we are always open to cover any of the relevant topic raised by participant during training program for the benefit of individual and organization.

#### Objective:

To impart knowledge about basic concepts and practical approach for improving energy efficiency of electrical utilities viz Compressors, Cooling towers, Fans, Blowers, Refrigeration and air conditioning systems, Power distribution system etc.

#### Learning outcome

Trainees would be able to identify energy wastages occurring in electrical utilities and chalk out and implement action plans for reducing the same, thus optimizing the energy efficiency of the system.



## Benefit to organization:

- 3.2.1 Reduced operating cost due to improved energy efficiency.
- 3.2.2 Improved health of the equipment.

## Deliverables of the program

1. To impart basic knowledge about energy efficiency of various electrical utilities and methods to conduct efficiency study.
2. To provide **HANDS ON** training in conducting energy efficiency study for electrical utilities in plant .
3. To demonstrate through actual site measurements the saving potential and actual savings achieved by implementing suitable measures .

## Target Participants

Graduate engineer trainees , engineers , middle management level professionals with electrical and mechanical background .

## Training Contents/Delivery schedule:

1. Introduction and Objective Setting of 3 Days program. Expectation discussion.
2. Pre Test.
3. Energy Management and Audit Action planning- Calculation and Energy saving.
4. Energy efficiency of electrical power distribution systems, Fans, Motors & Transformer, Cables.
5. Energy efficiency of Cooling towers, Pumping systems, blowers & Compressors.
6. Energy efficiency of Air conditioning and refrigeration systems.
7. Plant illumination or lightening systems.



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8. Power factor improvement techniques and applicable approach.
9. Approach towards conducting energy efficiency study of equipments.
10. Post Test.
11. Feedback, Assessment and Certificate distribution.

## Registration:

**Dates of the program:** 27-29 November 2017 at Nagpur.

**Participation fees:** Rs. 24000/- per delegate (Excluding GST@18%, Training program includes training material hard copies, Tea, Lunch & snack, excluding lodging and Boarding)

**Payment:** ECS/NEFT/DD in favor of "Centre for Industrial Solution and Advanced Training" Payable at Nagpur, Maharashtra, India. 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, MH (18KM from Airport)

*For Registration, please do contact to,*

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

1. Mahendra Dhande 09168326662,
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Contact for any In-house Training Program at your plant or location.

With Best Regards and 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;

(GST Code:27ABBPW5589J1ZV; SAC Code 99-9293; State Code 27; PAN No: ABBPW5589J)

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

Branch Office: A-306 Creative Home Apartment, Friends Colony, Anupam Society, Nagpur-440015, MS, India.

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

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CISAT Training Calendar Nov-Dec 2017 (Nagpur/Pune/Kolkata)										
Sr	Date	Day	Name of the Program	Location	Sr	Date	Day	Name of the Program	Location	
November					December					
<i>Oct</i>	30	Mon	<i>Fundamentals of OPC (Open Platforms Connectivity / OLE for Process Control)</i>	Pune						
	31	Tues								
<i>Nov</i>	1	Wed								
	2	Thu								
1	3	Fr	International Standards, Electrical Safety & Auditing, Arc Flash Management	Nagpur	1	Fr	<i>Id-E-Milad</i>			
	4	Sa			2	Sa				
	5	Su	<b>Sunday</b>		3	Su	<b>Sunday</b>			
2	6	Mon	Electrical Drives: VFD/VVVF/AC (Installation, Commissioning; Operation, Maintenance & Parameter Setting)	Nagpur	11	4	Mo	Introduction to Piping Codes & Standards	Kolkata	
	7	Tu				5	Tu			
3	8	We	Pipeline & Terminal Valves, Control Valves & Actuators: Operations & Maintenance, Selection	Pune	6	We				
	9	Th			12	7	Th	HVAC Systems: Design, Operations & Maintenance	Kolkata	
4	10	Fr	Power Transformer:s Best operating and maintenance Practices, Protection & Life Improvements	Nagpur		8	Fr			
	11	Sa			9	Sa				
	12	Su	<b>Sunday</b>		10	Su	<b>Sunday</b>			
5	13	Mo	PLC-SCADA: Programming & Engineering Applications (Fully Hands ON)	Pune	13	11	Mo	Industrial Hydraulics and Pneumatic; Operation, Maintenance, Troubleshooting & Predictive Maintenance,	Kolkata	
	14	Tu				12	Tu			
	15	We				14	13	We	RCFA of Continuous Caster Machine	Kolkata
	16	Th					14	Th		
6	17	Fr	Failure modes and effects analysis (FMEA)	NGP	15	15	Fr	Pressure Safety Valve: Fundamentals, Design, Sizing and Parameter	Kolkata	
	18	Sa				16	Sa			
	19	Su	<b>Sunday</b>		17	Su	<b>Sunday</b>			
7	20	Mo	Pumps, Air Compressors and Industrial Plant Machinery, Operation & Maintenance	Nagpur	16	18	Mo	Bearings and Alignment of Rotating Machines	Nagpur	
	21	Tue				19	Tue			
8	21	Tue	Substation (765/400/220/132/66 KV) Engineering, Design, HV/MV Testing of Electrical Equipments, Commissioning and Protection	Nagpur	17	20	We	Materials & Material Selection	Pune	
	22	We				21	Thu			
	23	Thu				18	21	Th	World Best Engineering and Modern proactive Maintenance Practices for safe, reliable, compliant and competitive performance.	Nagpur
9	24	Fri	22	Fr						
	25	Sat	23	Sa						
	26	Su	<b>Sunday</b>		24	Su	<b>Sunday</b>			
10	27	Mo	Power and Energy Management in Industrial Utilities & Power Factor Improvement	Nagpur	19	25	Mo	<i>Christmas</i>		
	28	Tu				26	Tu	Advance Mechantronics & Robotics	Pune	
	29	We				27	We			
	30	Th			28	Th				

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Training Calendar Nov 2017 - Dec 2017						
Sr No	Month	Name of the Program	Date	Duration in Days	Fees in INR +GST	Location
ELECTRICAL ENGINEERING						
1	Nov	Variable frequency Drives & Soft Starters: Fundamentals, Operation, Maintenance & Parameter Setting with hands ON	6-7 Nov	2	18000	Nagpur
2	Nov	Electrical Arc Flash Hazard, Electrical Safety & Auditing, Earthing and Management Techniques, International Standards (IEEE, IE, NEC, OSHA, NESC, NFPA)	3-4 Nov	2	15000	Nagpur
3	Nov	How to increase life of Power or distribution Transformer: Best operating and maintenance Practices, Relay setting & Protection	10-11 Nov	2	16000	Nagpur
4	Nov	Substation (765/400/220/132/66 KV) Engineering, Design, HV/MV Testing of Electrical Equipments, Commissioning and Protection	21-23 Nov	3	27000	Nagpur
5	Nov	Power and Energy Management in Industrial Utilities & Power Factor Improvement	27-29 Nov	2	18000	Nagpur
Mechanical/Production Engineering						
1	Nov	Pipeline & Terminal Valves, Control Valves & Actuators: Operations & Maintenance, Selection	8-9 Nov	2	18000	Pune
2	Nov	Failure modes and effects analysis (FMEA)	17-18 Nov	2	18000	Nagpur
3	Dec	Hydraulics and Pneumatics; Operation, Maintenance, Troubleshooting & Predictive Maintenance	11-12 Dec	2	18000	Kolkata
4	Nov	Pumps, Air Compressors and Industrial Plant Machinery Operation, Maintenance and Condition monitoring	20-21 Nov	2	18000	Nagpur
5	Dec	Introduction to Piping Codes & Standards	4-6 Dec	3	24000	Kolkata
6	Dec	HVAC System: Design, Operation and Maintenance	7-8 Dec	2	18000	Kolkata
7	Dec	RCFA of Continuous Caster Machine	13-14 Dec	2	18000	Kolkata
8	Dec	Bearings and Alignment of Rotating Machines	18-19 Dec	2	18000	Nagpur
9	Dec	Materials & Material Selection	20-21 Dec	2	16000	Pune
Performance Improvement and Best Maintenance Practices						
1	Dec	World Best Engineering and Modern proactive Maintenance Practices for safe, reliable, compliant and competitive performance.	21-23 Dec	3	27000	Nagpur
2	Nov	Failure modes and effects analysis (FMEA)	17-18 Nov	2	18000	Nagpur
INSTRUMENTATION, AUTOMATION AND CONTROL						
1	Nov	PLC-SCADA: Programming & Engineering Applications (Fully Hands ON)	13-16 Nov	4	24000	Pune
2	Nov	Pressure Safety Valve: Fundamentals, Design, Sizing and Parameter	24-25 Nov	2	16000	Nagpur
3	Dec	Pressure Safety Valve: Fundamentals, Design, Sizing and Parameter	15-16 Dec	2	16000	Kolkata
4	Dec	Advance Mechantronics & Robotics	26-28 Dec	3	24000	Pune