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## TWO DAY S TRAINING PROGRAM ON **Pressure Safety Valve (PSV)**

(Fundamentals, Design, Sizing and Parameter, Operation & Maintenance)

16-17 Feb 2018@Kolkata

**Objective of the program:** PSV design is one of the most important and critical aspects of the Process safety design. With a lot of emphasis being laid by the clients on Process safety now-a-days and mandatory requirements from government bodies, any Process design must fully incorporate an impeccable Process safety design. No Process design can afford any compromise with Process safety.

Hence, adequate knowledge and skill about various aspects of PSV design is imperative for the Process engineers. It is with this objective that this training program aimed at imparting thorough understanding of various aspects of Process design is initiated.

**Learning Outcome:** The attendees of the training program would be able to acquire following learning' s from the training Program:

- i) Fundamentals of the PSVs
- ii) Importance of the PSV in Process safety design
- iii) How to determine PSV design parameters
- iv) How to identify every applicable upset scenario without missing anyone
- v) How to calculate relieving rate of each scenario
- vi) What are various applicable international codes/standards and how are they applied?
- vii) How to prepare a PSV datasheet accurately and completely

With above learnings, the training is intended to provide following benefits to various stakeholders related to PSV activities:

For Process Design Engineers: Better knowledge and understanding of PSV design, reduced mistakes, minimization of repeat work, better efficiency and productivity, reduced man-hour cost.

For Process Plant Engineers: Better knowledge and expertise of PSV design leading to trouble shooting, identification of root cause of the problems and finding the solutions, effective review of project documents delivered by the engineering consultants/contractors



For Process Managers: In-depth knowledge and expertise of PSV design leading to better team guidance, mentoring and supervision resulting into increased team performance and productivity

For Vendors: Better understanding of Process specifications and design data leading to error-free vendor specification, documents and drawings, reduced approval cycles, timely and flawless delivery

Specific Features of the Program:

- i) The program focuses on learning through illustrations and consists of 2 case studies and more than 10 examples.
- ii) It explains Layer of Protection Analysis (LOPA) with the help of case study to bring about the conceptual clarity about the need for the PSV in Process design.
- iii) The program explains how to identify various applicable upset scenarios for a system with the help of case study.
- iv) The program will tell how dynamic analysis and multistage flashes can provide accurate method for calculating PSV relief load for fire case in case of multi-component mixtures.
- v) The PSV relief load calculation for each upset scenario is accompanied by an example for better clarity and understanding.
- vi) The program explains Omega method for PSV sizing for two phase flow with the example.

**Who should attend?** Process design engineers, Process plant engineers, Process managers in plants and design organizations, Instrument engineers, PSV vendors.

**Prerequisites:** Anyone who is a graduate Process or Instrumentation engineer working in a design engineering organization, plant or Vendor Company preferably with minimum 1-2 year's work experience can attend this training program.

### **Course Curriculum (Course Contents): Session-wise Details**

Session/ Day	Expected Duration (Hr)	Contents
1/1	3	<ul style="list-style-type: none"><li>• Concept and Fundamentals</li><li>• Functions of the PSV</li><li>• Working of the PSV</li><li>• Need for the PSV in Process Design with Case Study</li><li>• Layer of protection analysis (LOPA)</li><li>• Definitions of terms</li></ul>



2/1	3	<ul style="list-style-type: none"><li>• PSV Design Parameters</li><li>• MAWP, set pressure, overpressure, relieving pressure</li><li>• Single and multiple PSVs</li><li>• Applicability of API and ASME codes for PSV design</li><li>• Back Pressure</li><li>• Type of PSVs and optimum selection of the PSV type</li><li>• PSV sparing philosophy</li></ul>
3/1, 1/2	4	<ul style="list-style-type: none"><li>• PSV Upset Scenarios</li><li>• Identification of various upset scenarios with case study</li><li>• Comprehensive approach for scenario inclusion</li><li>• Relieving rate calculation for various upset scenarios with examples-fire, blocked outlet, control valve failure, thermal expansion, power failure, instrument air failure, air cooler fan failure, cooling water failure, reflux failure, exchanger tube rupture</li></ul>
2/2	4	<ul style="list-style-type: none"><li>• PSV Sizing</li><li>• PSV orifice size calculation for liquid, gas and two-phase flow with examples</li><li>• Determining governing scenario for PSV calculation with example</li><li>• Selection of orifice designation with example</li><li>• Calculation of PSV inlet and outlet pipe sizing with example</li></ul>
3/2	2	<ul style="list-style-type: none"><li>• PSV Datasheet</li><li>• PSV datasheet preparation</li><li>• Critical aspects of PSV datasheet preparation</li><li>• PSV checklist</li></ul>

### Certification:

Every successful participant will be awarded a course completion certificate.

### Delivery Methodology (Strategy):

- Introduction and Objective Setting
- Knowledge Presentations,
- Assignments & Exercise,
- Feedback and Assessment
- Discussion and Interaction
- Delivery 9:30 AM to 17:30 PM



# 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”**

## About CISAT:

“Centre For Industrial Solution and Advanced Training” is an ISO 9001:2015 certified Industrial consultancy services and Training/HR services Provider Company managed by professionals with rich Industrial experience. As a group we are involved in

- Industrial Consultancy and Solutions,
- HR & Training Services, Skill mapping & Assessment,
- Organizational development,
- Professional Trainings (In-house & Open house),
- Study and Improvement projects.
- Commissioning and supply of material (Automation & Firefighting system)

We are also expertize in

- Content or presentation development – Customized for your company
- E-learning Development
- Online Fully Integrated LMS or HR Automation system ( “HR Auto soft” )
- Virtual Learning
- Employee Certification and skill testing
- Mentoring etc.

We do conduct many In-house and Open House training programs round the years. We wish to say thank you to many companies for encouraging us by participating in earlier conducted training programs. A proposed training calendar for Jan-March 2018 to be conducted at Location of Kolkata, Goa, Nagpur, Hyderabad, Banglore & Pune is attached herewith for your perusal and nominations from your esteemed organization. More details are available at our web page [www.cisat.co.in](http://www.cisat.co.in) or can be asked by an email [cisat.nagpur@gmail.com](mailto:cisat.nagpur@gmail.com); [vikas@cisat.co.in](mailto:vikas@cisat.co.in) or +91-7709012815; 8669546332.

## Training Facility:

CISAT has International level Training Centre Located in a learning atmosphere at Butibori around 24 KM from Nagpur towards Wardha (Maharashtra Region), India. 18 KM from Nagpur Airport. It is equipped with training facility for upto 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.

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

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## Registration Details:

**Dates of the program:** 16-17 (Friday & Saturday) Feb 2018@Kolkata

**Participation fees:** INR 18000/- Per participant (GST@18% extra) (Nonresidential)

**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 442259001.

**Venue:** Hotel The Lindsay, Kolkata.

*For Registration, please do contact to,*

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

Mahendra Dhande ; 9168326662

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

### Training Calendar Jan 2018 - March 2018

Sr No	Month	Name of the Program	Date	Duration in Days	Fees in INR +GST	Location
<b>ELECTRICAL ENGINEERING</b>						
1	Jan	Electrical Power System protection; Parameters, Relay Setting and Relay Coordination	18-20 Jan	3	27000	Nagpur
2	Jan	Design of a reliable and cost effective Advanced Electrical Power system for Industrial Applications	23-25 Jan	3	27000	Hyderabad
3	Feb	Power and Energy Efficiency Management in Industrial Utilities & Power Factor Improvement	1-3 Feb	3	24000	Nagpur
4	Feb	Electrical Safety; International Standards & Auditing	12 Feb	1	8000	Kolkata
5	Feb	HT/LT Motor; Electrical Drives; VVVF; Soft Starter (Fundamental; Operation, Maintenance; Troubleshooting; CBM; Hands ON, Parameter Setting)	13-15 Feb	3	27000	Kolkata
6	Feb	Power System protection; Relay Setting and Coordination	19-21 Feb	3	30000	Goa

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7	Feb	Power Factor Improvement Techniques: Design & Industrial Applications	26-27 Feb	2	20000	Banglore
<b>Mechanical/Production Engineering</b>						
1	Jan	Hydraulics & Pneumatics and Valve: Operation, Maintenance, Troubleshooting and PPMT	24-25 Jan	2	18000	Nagpur
2	Feb	Pump and Air Compressor: Operation, Maintenance, Troubleshooting and PPMT	9-10 Feb	2	18000	Kolkata
3	Feb	Heat Exchanger Tube and Shell Type: Design, Operation, Maintenance & troubleshooting	19-20 Feb	2	18000	Kolkata
<b>Performance Improvement and Best Maintenance Practices</b>						
1	Jan	Reliability Centered Maintenance (RCM)	22-23 Jan	2	18000	Nagpur
2	Jan	World Best Engineering and Modern proactive Maintenance Practices for safe, reliable, compliant and competitive performance.	29-31 Jan	3	27000	Nagpur
3	Feb	Predictive Preventive Maintenance Techniques and NDT	16-17 Feb	2	20000	Goa
<b>Process; INSTRUMENTATION, AUTOMATION AND CONTROL</b>						
1	Jan	Pipeline & Terminal Valves, Control Valves & Actuators: Operations & Maintenance, Selection	22-23 Jan	2	18000	Pune
2	Feb	PLC, SCADA & Engineering Applications (Programming; Parameters; Communication; Case Studies & Plant Applications)	5-8 Feb	4	28000	Kolkata
3	Feb	Pressure Safety Valve (PSV) (Fundamentals, Design, Sizing and Parameter, Operation & Maintenance, Troubleshooting)	16-17 Feb	2	18000	Kolkata