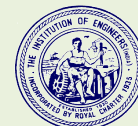




ENGINEERING STAFF COLLEGE OF INDIA

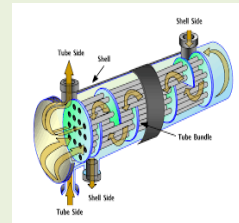
Autonomous Organ of The Institution of Engineers (India)
(IMS [ISO 9001:2015, ISO 14001:2015, ISO 50001:2018, ISO 45001:2018],
ISO/IEC 17025:2017 Certified, AICTE & CEA Recognized Institution)
Old Bombay Road, Gachibowli, Hyderabad – 500 032. Telangana, India



Management and Technology Division

Classroom Continuing Professional Development Programme on **Operation, Maintenance and Quality Control of High Pressure Valves & Heat Exchangers**

Dates: 04-06 September 2023
at ESCI Campus, Hyderabad



INTRODUCTION

A valve is a mechanical device which regulates either the flow or the pressure of the fluid. Its function can be stopping or starting the flow, controlling flow rate, diverting flow, preventing back flow, controlling pressure, or relieving pressure. Valves are mainly classified by following methods: Type of operation, The Nature and Physical condition of the flow, leakages and flow control types, operating method, functionality, etc. Most of the valves have two port, named inlet and outlet port. But for some applications there are multi-port configured valves. They can be three-way and four-way valves. High Pressure Valves are designed for leak free closure, regulation and management of fluids in process systems under High Pressure environment. With a wide variety of port sizes, end connections, style, temperature and pressure tolerance, High Pressure Valves are critical for instrumentation, fluid and process control system. High pressure valves are used in a variety of industries, from global oil to aerospace manufacturing. In fact, they are found in virtually every hydraulic system and work to keep system pressures safely below a desired upper limit.

A heat exchanger is a heat transfer device that exchanges heat between two or more process fluids. Heat exchangers have widespread industrial and domestic applications. Many types of heat exchangers have been developed for use in steam power plants, chemical processing plants, building heat and air conditioning systems, transportation power systems, and refrigeration units. The actual design of heat exchangers is a complicated problem. It involves more than heat-transfer analysis alone. Cost of fabrication and installation, weight, and size play important roles in the selection of the final design from a total cost of ownership point of view.

This programme primarily focusses to upgrade knowledge, acquire latest skills, and share best practices in operation and maintenance of high-pressure valves and heat exchangers (HXR's). The programme would equip the participants to address all maintenance and operational related issues.

OBJECTIVES

The main objective of the programme is to:

- Impart a detailed insight into the various aspects of High Pressure Valves and Heat Exchangers and to update and upgrade the knowledge.

COURSE COVERAGE

The following Topics that will be deliberated during the training programme:

- Introduction to high-pressure valves and applications
- Types of valves, fittings, selection criteria and important attributes
 - API 600 Gate Valves
 - High Pressure Valves for Power, Oil & Gas Industries
 - Cryogenic Valves – Designing & Manufacturing the next gen valves
 - Ultra High Pressure Valves (100,000 psi/150,000 psi)
- Codes, standards and Testing Procedures
- Materials used in Valve manufacture
- Valve pressure and flow control methods
- Operational problems of high pressure valves and remedial measures (friction sticking, cavitation, choked flow, acoustic noise control, chemical corrosion etc.,)
- High pressure valves – Critical issues and service solutions with case studies
- **Heat exchangers:** Types, Constructional Features, Design and applications

- Basic heat transfer calculations
- Cleaning methodologies for heat exchangers (Online Cleaning, Offline cleaning)
- Strategies to minimize corrosion and fouling of tubes – latest practices
 - Fouling Mitigation by Green technology
- Estimation of maintenance costs incurred due to fouling and corrosion
- NDE Inspection Methods (Ultrasonic testing, Eddy current testing etc.,)
- Remaining life assessment (RLA) studies of Heat exchangers

METHODOLOGY

Methodology of the programme includes class room Sessions with Lecture/discussion with audio visual aid, benched marked practices if any, video shows, Chalk & Talk sessions, group discussions, case studies, debates, sharing of experiences, etc. All the sessions will be interactive demanding active participation from all the members. Case Method of Instructions will be the main method of knowledge facilitation.

TARGET PARTICIPANTS

Maintenance engineers, Quality control and assurance personnel, Plant managers, engineers and technicians working with Nuclear, thermal power plants, refineries, steel plants, fertilizer plants, Cement factories, paper mills and process industries finds this course highly beneficial.

FACULTY

Faculty consists of experts from industries, research establishments, academia and experts who are into research work are involved, apart from the ESCI.

COURSE DIRECTORS

Dr. P.V.S.S. SRIDHAR, M.E, Ph.D. (IIT-G)
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Email: mtmkt@escihyd.org/mt@escihyd.org

PROGRAMME DATES & TIMINGS

Dates: 04-06 September 2023

Timings : On the first day Registration will commence at **09:00 Hrs**. On all other days the programme timings will be from **09:45-17:15 Hrs** with breaks in-between for tea and lunch.

COURSE FEE: Rs.16,500/- (Rupees Sixteen Thousand Five Hundred only) per Participant + GST@18% Extra. Fee includes, course material, course kit, twin-sharing/single AC accommodation as per availability, breakfast, lunch, dinner, tea / coffee and snacks during the actual days of training programme.

PAN Card No AAATT3439Q; GST No. 36AAATT3439Q1ZV. H.S. No. 999293 (Under commercial training or coaching services – clause 65(105) (ZZC) of Finance act – 1994).

Programme fee is to be paid in favor of “**THE INSTITUTION OF ENGINEERS (INDIA) – ENGINEERING STAFF COLLEGE OF INDIA**” in the form of demand draft payable at Hyderabad. Alternatively, the payment may be made by Electronic Fund Transfer (EFT) to ESCI - **SB A/c No.0432104000039631 with The IDBI Bank Ltd., Gachibowli Branch, Plot No. 2-53/2, JNIBF, IIIT Junction, Gachibowli, Hyderabad-500032 by RTG's/ NIFT / IFSC Code No: IBKL0000432**. While using EFT method of payment, please ensure to communicate us your company name, our Invoice reference and programme title.

CERTIFICATION

A Certificate of participation will be awarded to each participant on conclusion of the programme.

GENERAL INSTRUCTIONS:

- ESCI encourages participants to present case studies from their respective organizations.
- ESCI provides complimentary accommodation and boarding to the participants one day before commencement (Check-in 1200 h) and one day after conclusion (Check-out 1200 h) of the programme duration. Overstay charges will be applicable as per ESCI rules (subject to availability of accommodation).
- Well-developed Information Centre and Internet facilities are available to the participants free of cost.