

## **CERTIFICATE COURSE ON PIPING ENGINEERING** **BY INDIAN INSTITUTE OF TECHNOLOGY BOMBAY (IITB)**

### **1. PROGRAMME OVERVIEW**

The Certificate Course on Piping Engineering by Indian Institute of Technology, Bombay, is an e-learning programme exclusively providing a niche, high-end training course for engineers, working professionals and graduate college engineering students. It is web-based learning, encompassing state-of-the-art technology and software driven. It has been created by an elite faculty from world class technological institutions in India, specially designed to suit current practical needs of industry.

The course is more comprehensive than the traditional classroom model. The knowledge of Piping Engineering had been assimilated over twenty (20) years and a unique methodology that has been developed for transmitting engineering knowledge online. Sound content and a unique content manager make it possible for personnel everywhere to learn the subject with the same feel as when a teacher is teaching personally. The course content is enriched with extensive examples, tutorials, assignments and animation.

To ensure the progress of each student, the Teacher/Mentor is on email terms with the student 24 x 7 throughout the course. Doubts are cleared through email, phone and even SMS. The Teacher/Mentor will observe the students' progress during the course at any point of time as the tracking systems and graphs will be automatically generated. Mock exams are available for the students to test his understanding on the subject content at the end of each topic.

Traditionally engineers have about 10 years on-the-job experience and exposure before a few gifted ones can be 'piping engineers' in real sense. This course will add many years of "experience" to his resume.

The student is awarded the prestigious certificate issued by the world renowned India Institute of Technology Bombay, at the end of the course and upon passing the exam at the Tele-Temps authorized centre.

### **2. TARGET GROUP**

#### **Engineers in the disciplines of**

- Mechanical Engineering
- Chemical Engineering
- Production / Industrial Engineering
- Instrumentation Engineering
- Petroleum Engineering
- Civil / Construction Engineering

## **Working Professionals with background in**

- Process plants
- Manufacturing
- Power Plants
- Shipbuilding / Marine industry
- Cross country piping (buried, above-ground, subsea)
- Gas Distribution
- Municipal corporation in distribution of utilities (gas, water, etc)
- Offshore platforms
- Oil and Gas industry
- Other industries

## **3. CONTENTS**

1. Scope of Piping Engineering
2. Pipe Sizing Techniques
3. Mechanical Design of Pipes
4. Codes and Standards
5. Piping Elements
6. Valves
7. Transient Flow in Piping Systems
8. Piping Network Design
9. Insulation Design for Pipes
10. Nozzle Reinforcement
11. Various Stresses in Pipes
12. Pipe Support Selection and Design
13. Thermal Stresses in Pipes
14. Stress Analysis of Piping Systems
15. Expansion Joints
16. Basics of Piping Drawing
17. Plot Plan Fundamentals
18. Equipment and Piping Layout
19. Dynamic Analysis of Pipes
20. Case Study

## 4. LEARNING OUTCOMES

Upon completion of the course the individual would know and understand:

1. **Pipe, Fittings, Flanges and Valves**  
The broad spectrum of items that make up the "vocabulary" of the piping language.
2. **Relationship of Other Engineering Groups**  
The relationship, activities and contribution of all the other engineering and design groups on the project. \
3. **Piping Execution**  
How piping design is linked to P&IDs, equipment, stress analysis and structural support design.
4. **Process Documents**  
Be able to read, understand and know how to use the PFD (Process Flow Diagram) and the P&ID (Piping and Instrument Diagram).
5. **Process Variables**  
The four basic process variables: pressure, temperature, flow and level.
6. **Equipment Piping**  
The right and the wrong way to pipe up (connect pipe to) different kinds of equipment and for maintenance/disassembly space requirements.
7. **Allowable Pipe Spans**  
The span capabilities of pipe in the different schedules for a wide variety of common piping materials
8. **Expansion of Pipe and Pipe Stresses**  
That they need to treat a piping system as though it is alive. It has a temperature and that temperature causes it to grow and move.
9. **Standards and Specifications**  
The content and application standards and specifications used; these being pipe supports and piping classes.
10. **Vessel Piping**  
About the connecting, supporting and guiding of piping attached to vessels (horizontal or vertical) and tanks.
11. **Rack Piping**  
There is a logical approach to the placement of piping in (or on) a pipe rack and the setting of rack elevations.
12. **Expansion Loops**  
Be able to use simple rules and methods for sizing loops in rack piping.
13. **Design Production Methods**  
Be able to make all types of piping documents (sketches, layouts, detail piping plans, isometrics, etc).

# **Tele-Temps**

14. **Insulation**

The purpose of process heat conservation and types of insulation, know the different methods (Jacketing, Tracer Tubing or Electric).

15. **Deliverables**

To understand the purposes of each of the piping deliverables, such as plot plans, key plans, piping plans and sections, and isometrics.

16. **Drawing Content**

How to present their designs.

**5. CERTIFICATION (for programmes with certification)**

“Certificate Course on Piping Engineering”

(Issued by Indian Institute of Technology Bombay)

**6. DURATION**

300 Hours Online Course followed by written examination at venue in Kuala Lumpur

**7. COURSE FEE**

US\$3,000 per person

**8. CONTACT INFORMATION**

a) Name & address of Training Provider

Indian Institute of Technology Bombay (IITB)

In collaboration with

AP Tele-Temps Asia Pacific Sdn Bhd  
1441, 14th Floor, Komplek Selangor  
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Malaysia

b) For more detailed information, contact

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