



**GLOBAL
INDUSTRIES
INTELLIGENCE**

**5 DAY
EXTENSIVE
COURSE
PROCESS PIPE
DESIGN &
MAINTENANCE**

**3rd - 7th
November, 2024**

**MOVENPICK
HOTEL AL KHOBAR
ONLINE ON ZOOM**

COURSE DESCRIPTION:

This course is designed for engineers and others who require an understanding of pipeline design. It is designed to be exhaustive but to present a basic understanding of the fluid flows in pipeline systems. Candidates are introduced to the basic principles underlying fluid mechanics. The nature of statistics and liquids in motion will be studied and fundamental equations covering fluid flow will be applied to situations to which candidates are familiar. Candidates will, therefore, acquire knowledge as to solutions of problems that they may encounter in the future. The course will conclude by putting theory into context by considering the installation of pipelines and fabrication techniques. Tutorials and additional help will be provided at all stages.

WHO SHOULD ATTEND:

The course is intended to provide an overview of piping for those involved in the analysis, design, fabrication, maintenance or specification of piping systems. Chemical, mechanical petroleum/refining, utility, plastics, environmental, structural and other engineers will find it a time saving means of updating and broadening their knowledge of piping design, analysis and fabrication. Those engineers who must deal with other important considerations about code requirements should profit from the practical approach to obtaining satisfactory and economical piping systems.

COURSE OUTLINE DAY 1 :

INTRODUCTION.

Codes and Standards:

- ✓ ASME boiler pressure vessel code overview
- ✓ ANSI piping and components codes and standards
- ✓ AWS, structure welding guide
- ✓ ASNT standards

Cost Analysis:

- ✓ Total construction cost, diameter of Pipeline, valves and fittings
- ✓ Pipeline Pressure rating
- ✓ Installation of pipelines underground, pipe coatings
- ✓ Pipe supports, elevated supports
- ✓ Operational costs, manpower, equipment standing costs (Tankers, bulk vehicles, blending plants, filling gantries)

Layout of Piping Systems:

- ✓ Land ownership and use, rights of way, easements
- ✓ Existing roads and footpaths
- ✓ Natural features, rivers, canals, water mains
- ✓ Pylons, underground cables and services

DAY 2 – PIPE SIZING & SYSTEM DESIGN

Pipe Sizing Calculations:

- ✓ Reynolds number
- ✓ Dynamic and static head loss
- ✓ Pressure loss in elbows, valves and fittings
- ✓ Pressure loss calculation

Pipelines System Design:

- ✓ Use of standard fittings, elbows, flanges
- ✓ Vent valves and drain valves
- ✓ Pipe-tracks center line spacings
- ✓ Minimum ground clearance
- ✓ Minimum clearances over main roads, railways
- ✓ Piping below ground, minimum cover
- ✓ Pipeline thermal expansion
- ✓ Pipe supports and anchoring
- ✓ Connection to New Tanks

DAY 3 NDE TESTING – CORROSION PROTECTION

NDE/NDT Overviewn:

- ✓ Radiographic test methods
- ✓ On-site inspection of construction practices
- ✓ Continuous testing of all or random joints
- ✓ Destructive testing of random pipe sectors
- ✓ Hydrostatic testing
- ✓ Pneumatic pressure testing
- ✓ Tracer gas leak testing techniques
- ✓ Dye penetrant testing
- ✓ Magnetic particle testing
- ✓ Ultrasonic testing

Corrosion protection:

- ✓ External painting and coating
- ✓ Internal lined pipe
- ✓ Galvanised pipe
- ✓ Cathodic protection

DAY 4 PIPELINE FITTINGS ETC

Pipeline Fittings:

- ✓ Ball valve, plug valve, butterfly valve, globe valve
- ✓ Check valve, pressure relief valves
- ✓ Motorised valves
- ✓ Pumps and strainers
- ✓ Meters

Specifications for Piping, Pipe Fitting, Valves and Pumps:

- ✓ Specifications for linepipe quality, pipe diameter and wall thickness
- ✓ Specifications for flanges and fittings
- ✓ Specifications for valves
- ✓ Specifications for pumps / pump requisition sheet

DAY 5 PIPELINE DESIGN TECHNIQUES & FABRICATION

Design Drawings:

- ✓ Block diagram, symbols
- ✓ Flow diagrams, Process Flow Scheme, Process Engineering Flow
- ✓ Layout drawings, pipe detail drawings
- ✓ Piping isometrics, computer aided design (CAD)
- ✓ Bill of Materials

Pipelines Fabrication:

- ✓ pipeline storage and handling
- ✓ Field bends, field coating
- ✓ Stringing and lowering
- ✓ Welding, welders qualifications, weld inspection
- ✓ Pressure test requirements
- ✓ Internal cleaning and gauging
- ✓ Submarine pipelines, undersea connection
- ✓ Commissioning

TRAINING METHODOLOGY

- Comprehensive Manual
- Supporting Power Point Presentations
- Flow master V5 Interactive Software for designs
- Vibration Computer based Training software
- Case Studies
- Group studies
- Full explanation of ASME B31.3-2010 – Summary of Changes
- Skills test.



Trainer Profile

INTERNATIONAL EXPERT JAMES M.WATTERSON

PHD M.E, F.I.O.M. F.R.G.S., M.B.I.M., C.M.I.L.T., M.A.S.Q.
FELLOW INSTITUTE OF OPERATION'S MANAGEMENT
FELLOW OF ROYAL GRAPHICAL SOCIETY
MEMBER OF BRITISH INST OF MANAGEMENT
CHARTERED MEMBER OF THE INSTITUTE OF LOGISTICS& TRANSPORT
MEMBER OF THE AMERICAN SOCIETY FOR QUALITY



JAMES WATTERSON IS THE AUTHOR :-

Diagnostic Skills – Published 2011- ISBN 978 – 1 -907629- 09- 9 Available on Amazon/Google Books-in the USA & UK

Materials Management Certificate – five manuals for Dublin University
Autobiography published in 2015

Three more books due to be published in February 2018- "Rotating Equipment Maintenance & Troubleshooting" "Understanding Compre "Tribology" all about friction.

COMPANIES WHERE TRAINING HAS TAKEN PLACE•

- GASCO
- OMAN LNG
- SIRTE OIL
- NIGERIA LNG
- SABIC INDUSTRIES
- ZADCO
- OMAN GAS CORP
- ENI-GAS
- QP-QATAR
- CRISTAL
- ADCO
- OMAN RPC
- ZUETINA
- SEC
- ADMA-OPCO
- DEWA
- RASCO OIL
- KUWAIT-KPC
- SWEA
- TAKREER
- OMAN OCCIDENTIAL
- WAHA OIL
- BP-SARAWAK

5 Day Extensive Course Process Pipe Design & Maintenance

3rd - 7th November, 2024
Movenpick Hotel Al Khobar
& Online on Zoom

FOR REGISTRATION PLEASE COMPLETE THIS FORM AND EMAIL BACK TO
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REGISTRATION DETAILS

NAME

JOB TITLE

MOBILE NUMBER

EMAIL

NAME

JOB TITLE

MOBILE NUMBER

EMAIL

NAME

JOB TITLE

MOBILE NUMBER

EMAIL

ORGANISATION

ADDRESS

TOWN STATE

COUNTRY POSTAL CODE

PHONE FAX

NATURE OF BUSINESS

REGISTRATION FEE:

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Book and Pay Before 3rd October, @GBP 3200/person (Should be min. 3 participants)

Book and Pay After 3rd October, 2024 @GBP 3595/person (Should be min. 3 participants)

Original Fee @GBP 3995/person (For single participant)

AUTHORIZATION:

Signature _____ Date _____

Name _____ Position _____

THIS BOOKING IS INVALID WITHOUT A SIGNATURE.

AUTHORIZATION SIGNATORY MUST BE AUTHORIZED TO SIGN ON BEHALF OF CONTRACTING ORGANISATION