

**Training Title**

**ADVANCED PIGGING & PLANT ENGINEERING**

**Training Duration**

5 days

**Training Venue and Dates**

REF ME080	Advanced Pigging & Plant Engineering	5	22-26 Oct	\$4,250	Abu Dhabi, UAE
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In any of the 5 star hotel. The exact venue will be informed once finalized.

**Training Fees**

- 4,250 US\$ per participant for Public Training. Fees Includes Course Materials/ Handouts, Tea/Coffee, refreshments, International Buffet Lunch

**Training Certificate**

Define Management Consultancy & Training Certificate of course completion will be issued to all attendees.

**INTRODUCTION:**

Pigging is essential for pipelines. Pigging is needed in all the pipelines life stages, during construction, During Operation, and for inline inspection. Pigs can do cleaning to remove depress and other remains after pipe construction to be ready for service. During operation pipeline cleaning to remove wax and black powder will improve the pipeline performance and reduce pumping power. Pigging is used for inline inspection where the present condition of the pipeline can be measured and monitored using recent techniques like MLF and Ultrasonic tools. This will help collecting data for pipeline assessment. This five days course will discuss different aspects of pipeline pigging and its different applications for the pipelines.

**OBJECTIVES:**

1. Delegates will learn about different types and designs of pigs.
2. Delegates will learn different applications of pigs for liquid and gas pipeline
3. Delegates will learn about the pipeline degradation mechanisms and types of failure
4. Delegates will learn the fitness-for-service assessment techniques

**WHO SHOULD ATTEND**

Engineers and Technicians involves in pipeline construction, maintenance and operation.

**TRAINING METHODOLOGY:**

A highly interactive combination of lectures and discussion sessions will be managed to maximize the amount and quality of information and knowledge transfer. The sessions will start by raising the most relevant questions, and motivate everybody find the right answers. You will also be encouraged to raise your own questions and to share in the development of the right answers using your own analysis and experiences. Tests of multiple-choice type will be made available on daily basis to examine the effectiveness of delivering the course. Very useful Course Materials will be given.

- 30% Lectures
- 30% Workshops and work presentation
- 20% Group Work & Practical Exercises
- 20% Videos & General Discussions

**COURSE CONTENTS:**

**Ch 1 Pig Design**

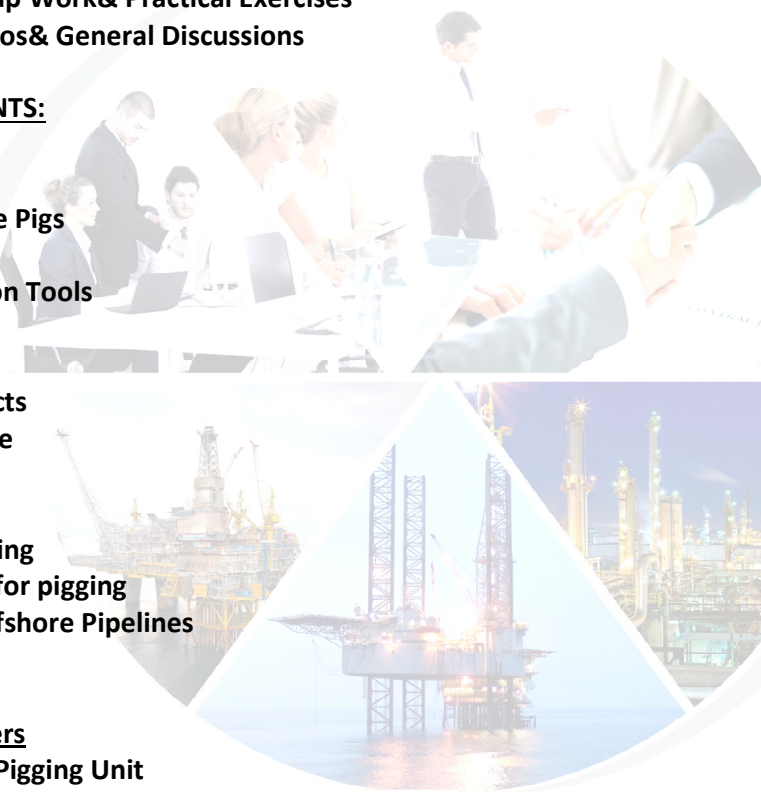
Types of Pipeline Pigs  
Utility Pigs  
In-Line Inspection Tools  
Gel Pigs  
Pig selection  
Pig Design Aspects  
Pigs Performance  
Pig Pressure  
Pig Velocity  
Pig Wear & Sealing  
Pipeline Design for pigging  
Onshore and Offshore Pipelines  
Pipeline Fittings

**Ch 2 Pig Launchers**

Components of Pigging Unit  
Pig Launching & Receiving Chambers  
Pigging Obstacles  
Launchers Accessories  
Scraper Traps  
Launching and Receiving Procedures  
Pig Tracking Systems

**Ch 3 pigging Applications**

Pigging During Pipeline Construction  
Debris Removal  
Gauging  
Cleaning  
Flooding for Hydrotest



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Dewatering & Drying  
Methods of Pipeline Drying  
Case Study – Flooding & Drying  
Pigging During Operation  
Separation of Products  
Improving Flow Efficiency  
Corrosion Inhibition  
Meter Proving  
Pigging Frequency  
Case Study – Wax & Black Powder Removal  
Specialist Applications  
Intelligence Pigging  
Calliper Survey  
Magnetic Flux Pig  
Ultrasonic Pig  
Internal Coating  
Epoxy Lining  
Pressure Barriers

**Ch 4 Intelligent Pigs MFL**

Pipeline Deterioration  
Inspection & Testing Methods  
Inline Inspection  
Types of Flaws  
Parameters Affecting ILI Tools Performance  
Equipment Design  
Probability of Detection  
Magnetic Flux Leakage Technology  
Factors Affects Capabilities  
MFL versus Ultrasonic  
Case Study

**Ch 5 Pipeline Assessment**

Causes of Pipeline Failures  
Pipeline Accident Reports  
Fitness-for-Service Assessment  
Piping Degradation – Type of Flaws  
Damage Mechanisms  
Pre-Service Flaws  
In-Service Flaws  
Galvanic Corrosion  
Cathodic Protection  
Sweet Corrosion – Inhibitors  
Sour Corrosion  
Types & Areas of Deterioration  
Piping Service Classes

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Inspection Intervals  
Remaining Life Calculations  
Pipeline Assessment – Metal Loss Defects  
Level of Assessment  
Assessment Procedure  
External and Internal Corrosion

**Case Studies, Discussions, Last Day Review and Assessments will be carried out.**

**TRAINING OUTCOME**

Upon successful completion of this course, participants will be able to:

1. Learn about different types and designs of pigs.
2. Learn different applications of pigs for liquid and gas pipeline
3. Learn about the pipeline degradation mechanisms and types of failure
4. Learn the fitness-for-service assessment techniques



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