



## **Training Courses provided by TSI Libya**

These courses can be modified to suit client specific requirements

### **Training Tasks**

---

#### **1. Basic Information about Corrosion.** (Duration 1 Week)

- \* Definition of corrosion.
- \* Requirement for corrosion and basic corrosion cell.
- \* Factors influencing corrosion (Temperature, Pressure, Conductivity...).
- \* Special consideration.
- \* Oxygen, Hydrogen, Hydrogen Sulphide, Carbon dioxide.

#### **2. Materials used in the oil and gas industry.** (Duration 1 Week)

Carbon steel, API, LX grades, stainless steels 316, 316, Special alloys, Titanium, Glass reinforced plastic.

---

#### **1. Monitoring Systems:** - (Duration 10 Days)

- \* Ultrasonic Surveys.
- \* Corrosion coupons.
- \* Electrical resistance probes.
- \* Linear polarity probes.
- \* Demulsifier, Corrosion Inhibitor, pH neutralizer, Scale Inhibitor, Biocide, Oxygen Scavenger, Hydrogen Sulphide Scavenger and Compatibility.

#### **2. Mitigation of Corrosion:** - (Duration 10 Days)

- \* Chemical
  - \* Coating/lining.
  - \* CP
  - \* Material Selection.
- 

#### **1. Cathodic Protection;** (*Duration 10 Days*)

- \* General Principles.
-

- \* Protection Criteria.
  - \* CP Applications, Equipment.
- 

**1. Inspection:** - *(Duration 1 week)*

- \* Visual.
- \* Ultrasonic.
- \* Dye Penetrant, MPI and Eddy Current.

**2. On line Monitoring:** - *(Duration 1 week)*

- \* Retractable Systems.
  - \* Retrievable Systems.
  - \* Handling of Coupons.
  - \* Cleaning / Weighting and analysis of coupons.
  - \* Pit measurement.
- 

**1. Failure Analysis Basics:** - *(Duration 1 week)*

- \* CO<sub>2</sub>.
- \* H<sub>2</sub>S.
- \* Fatigue.
- \* Erosion.
- \* Cavitation.

**2. Microbial Corrosion:-** *(Duration 4 days)*

- \* SRB, SOB.
  - \* Monitoring Methods.
  - \* Mitigation Methods.
- 

**1. Sample Analysis:-** *(Duration 5 days)*

- \* Water.
- \* Oil.
- \* Gas.
- \* Laboratory Techniques, and Field Techniques.

**2. Pipelines:-** *(Duration 1 week)*

- \* Monitoring Locations.
  - \* Pigging – Cleaning and intelligent.
  - \* Materials.
  - \* Lining.
  - \* Wrapping.
  - \* CP Systems.
  - \* Pig Return analysis.
  - \* Life Remaining Analysis.
-

**1. Safety** (*Duration 10 days*)

- \* Permit to work.
  - \* Plant.
  - \* Inspection.
  - \* CP.
  - \* Vessel Entry.
  - \* Chemicals.
- 

**1. Quality Control** (*Duration 1 week*)

**2. Risk Based Inspection** (*Duration 1 week*)

**3. Painting** (*Duration 1 week*)

**4. Quality Organization Chart.** (*Duration 3 days*)

**5. Employees Evaluation Performance.** (*Duration 2 days*)

**6. TDW Hot Tapping Process & Procedures.** (*Duration 3days*)