

# EXPERT

EXPERT & PROFESSIONAL EXCELLENCE FOR TRAINING & CONSULTATIONS

## *Cryogenic Systems Engineer LNG & Low Temperature Process Systems*

### Course Contents:

#### Module One: Cryogenics and LNG Fundamentals

- Introduction to cryogenics: temperature ranges, gases, and applications.
- Thermodynamic behavior at low temperatures.
- LNG industry overview: value chain, key players, and technologies.
- LNG properties, composition, and phase behavior.

#### Module Two: Liquefaction & Storage System Design

- LNG Liquefaction Technologies.
- Process Flow Diagrams & Cycle Comparisons.
- Cryogenic Tank Types.
- Insulation Systems & Boil-Off Gas (BOG) Control.

#### Module Three: Cryogenic Equipment & Process Components

- Cryogenic Heat Exchangers.
- Cryogenic Machinery.
- Piping & Valve Systems.
- Materials & Mechanical Behavior.

#### Module Four: Safety, Risk, and Operational Challenges

- Hazards of LNG & Cryogenic Fluids.
- Process Safety: HAZOP, SIL, Risk Assessment.
- Fire Protection, Leak Detection & Emergency Systems.
- Operational Challenges & Failure Modes.

## **Module Five: Controls, Innovation & Future Applications**

- **Process Control, Instrumentation & Automation for Cryogenic Systems.**
- **SCADA, DCS & ESD in LNG Plants.**
- **Digitalization in Cryogenic Operations.**
- **Emerging Trends.**

<b>Location</b>	<b>Dubai – Shangri-La Hotel</b> <b>Sawsan Room</b>
<b>Start Date</b>	<b>15 June 2025</b>
<b>End Date</b>	<b>19 June 2025</b>