



Global Professionals Institute for Training

معهد المحترفون العالهيون للتدريب الأهلي

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## معهد المحترفون العالهيون للتدريب الأهلي



Global Professionals Institute for Training  
معهد المحترفين العالميون للتدريب النهلي

## Gas Conditioning and Compression System Operation

### Schedule Dates:

Start Date	End Date	Place
24 November 2024	28 November 2024	Dubai – Carlton Down Town



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### **Program Introduction:**

- ✓ Understand the basic concepts and operational principle, know the specification (water content of gas and issues),
- ✓ Analyze the operating conditions to detect problems more quickly at the production level, improve the existing processes performances,
- ✓ Understand the operation and the detailed equipment technology of compressors,
- ✓ Analyze the operating parameters associated to those rotating machines and their auxiliary circuits,
- ✓ Operate compressors properly.

### **Who should attend?**

- This course provides technical and operational knowledge related to natural gas treatment and transportation.



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## Program Outlines

### **Day One**

#### **VAPOR-LIQUID EQUILIBRIUM, ELEMENTS OF DISTILLATION & ABSORPTION**

- Phase envelopes.
- Well effluents behavior from pay zone to surface processing facilities.
- Techniques applied to mixture separation: flash process, distillation process.
- Absorption and stripping phenomena.

### **Day Two**

#### **SPECIFICATIONS & WATER CONTENT OF GAS - HYDRATES**

- Constituents raising problems for storage, transport or end use of natural gas.
- Different specifications and quality requirements for natural gas.
- Necessary treatments to conform these specifications.
- System behavior. Moisture content of a saturated gas.
- Applications:
- Moisture content of different gases of various compositions.
- Hydrate formation inhibition by injection of inhibitors: MeOH, MEG, DEG, LDHI...

### **Day Three**

#### **GAS DEHYDRATION: TEG ABSORPTION, MOLECULAR SIEVES**

- Gas dehydration process: conventional TEG process.
- Case study of gas processing operations: TEG process troubleshooting.
- Gas dehydration by physical adsorption (molecular sieves): technologies, performances and operating principles.



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### **Day Four**

#### **GAS TREATMENT: SWEETENING, CONDENSATE EXTRACTION & FRACTIONATION**

- Overview of the techniques dedicated to gas sweetening:
- Chemical solvent processes - Amine units (MEA, DEA, DGA, MDEA...).
- Physical solvent processes.
- Hybrid (physic-chemical) solvent processes.
- Overview of other techniques.
- Conversion of H<sub>2</sub>S: sulfur production (CLAUS process) and tail gas processing.
- Natural Gas Liquids (NGL) extraction (removal of heavy components).
- Low Temperature Separation processes (LTS):
- External refrigeration loop.
- Joule-Thomson expansion.
- Turbo-Expander.
- NGL Fractionation Schemes (C<sub>2</sub>/LPG/C<sub>5</sub>+ recovery).

### **Day Five**

#### **TECHNOLOGY & OPERATION OF CENTRIFUGAL & RECIPROCATING COMPRESSORS**

- Operating principle, flowrate tuning.
- Technology: constitutive elements and their function.
- Circuits auxiliaries: lubrication, sealing system, cooling, safety systems.
- Compressor's operation: routine surveillance, transient conditions.

#### **COMPRESSORS OPERATION (case studies)**

- Start-up, shutdown and on-line monitoring.

#### **FEEDBACK & CASE STUDIES - TROUBLESHOOTING SPECIFIC TO CLIENT ASSETS**

- Tailored workshops as per client requirements.





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### Training Methodology:

- Slide presentations
- Interactive discussion
- Simulations and Gamification
- Online Video material

### Cost Quotation in Kuwaiti Dinars

The total cost includes:

- 🌐 Instructor(s) expenses
- 🌐 Training materials
- 🌐 Certification
- 🌐 Lunch Buffett

**Total Cost: 1250 KD per Participant**

(One Thousand Two Hundred Fifty Kuwaiti Dinar)



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