HRODC Postgraduate Training Institute

A Postgraduate-Only Institution

216

Natural Gas Processing and Troubleshooting

Course or Seminar

Leading To:

DIPLOMA – POSTGRADUATE IN

Natural Gas Processing and Troubleshooting (Quad Credit)

Accumulating to

POSTGRADUATE DIPLOMA

Progressing To A Masters Degree –

MBA – MSc - MA

Course Coordinator:
Prof. Dr. R. B. Crawford – Director of HRODC Ltd. and Director of HRODC Postgraduate Training Institute, A Postgraduate-Only Institution. He has the following Qualifications and Affiliations:

- Doctor of Philosophy {(PhD) (University of London)};
- MEd. Management (University of Bath);
- Advanced Dip. Science Teacher Ed. (University of Bristol);
- Postgraduate Certificate in Information Systems (University of West London, formerly Thames Valley University);
- Diploma in Doctoral Research Supervision, (University of Wolverhampton);
- Teaching Certificate;
- Fellow of the Institute of Management Specialists;
- Human Resources Specialist, of the Institute of Management Specialists;
- Member of Academy of Management (MAoM), within the following Management Disciplines:
  - Human Resources;
  - Organization and Management Theory;
  - Organization Development and Change;
  - Research Methods;
  - Conflict Management;
  - Organizational Behavior;
  - Management Consulting;
  - Gender & Diversity in Organizations; and
  - Critical Management Studies.
- Member of the Asian Academy of Management (MAAM);
- Member of the International Society of Gesture Studies (MISGS);
- Member of the Standing Council for Organisational Symbolism (MSCOS);
- Life Member of Malaysian Institute of Human Resource Management (LMIHRM);
- Member of ResearchGate Community;
- Member of Convocation, University of London;
- Professor HRODC Postgraduate Training Institute.

Prof. Crawford was an Academic at:

- University of London (UK);

- London South Bank University (UK);
- University of Greenwich (UK); and
- University of Wolverhampton (UK).

For Whom This Course is Designed
This Course is Designed For:

- Process Engineers (Oil and Gas Industry);
- Reservoir Engineers;
- Field Engineers;
- Geologists;
- Reservoir engineers;
- Gas process and facility personnel;
- Technical, project and managers responsible in the production development and field operation for gas facilities operation;
- Personnel involved in the operation of gas processing facilities;
- Those new to the industry such as entry-level engineers;
- Anyone interested in a general, technically oriented overview of the gas processing industry.

Duration:20 Days

Cost:£20,000.00Per Delegate

Please Note:

- V.A.T. (Government Tax) does not apply to Corporate Sponsored Individuals, taking Programmes or Courses in any location - within or outside the UK.
- It applies only to Individuals and Corporations based in the UK and to Non-UK Individual Residents taking courses in the UK.

Cost includes:

- Free Continuous snacks throughout the Event Days;
- Free Hot Lunch on Event Days;
- Free City Tour;
- Free Stationery;
- Free On-site Internet Access;
- **Diploma – Postgraduate – in Natural Gas Processing and Troubleshooting (Quad Credit);** or

- Certificate of Attendance and Participation – if unsuccessful on resit.

HRODC Postgraduate Training Institute's Complimentary Products include:

1. HRODC Postgraduate Training Institute's **Leather Conference Folder**;
2. HRODC Postgraduate Training Institute's **Leather Conference Ring Binder/ Writing Pad;**
3. HRODC Postgraduate Training Institute's **Key Ring/ Chain**;
4. HRODC Postgraduate Training Institute's **Leather Conference (Computer – Phone) Bag** – Black or Brown;
5. HRODC Postgraduate Training Institute's **8GB USB Flash Memory Drive**, with Course Material;
6. HRODC Postgraduate Training Institute's**Metal Pen;**
7. HRODC Postgraduate Training Institute's **Polo Shirt**.

Please see product images, as a separate file - Complimentary Products For Students and Delegates, from HRODC Postgraduate Training Institute.

Daily Schedule:9:30 to 4:30 pm.

Location: Central London and International Locations

Natural Gas Processing and Troubleshooting
Leading to Diploma-Postgraduate in
Natural Gas Processing and Troubleshooting (Quad Credit)

Current Module #	Pre-existing Course #	Module Title	Page	Duration	Credit Value
215.M1	215.M1	Natural Gas Processing and Troubleshooting (1)	6	1 Week (5 Days)	Single
215.M2	215.M2	Natural Gas Processing and Troubleshooting (2)	8	2 Weeks (5 Days)	Double
215.M3	215.M3	Natural Gas Processing and Troubleshooting (3)	19	1 Week (5 Days)	Single

Course Contents, Concepts and Issues

Module 1
Natural Gas Processing and Troubleshooting (1)

Natural Gas Processing

M1. Part 1: Principles of Processing

- Units and Conversions;
- Basic Chemistry Concepts;
- Specification Test Methods;
- Thermodynamics.

M1. Part 2: Pumps

- Pump Concepts;
- Centrifugal Pumps;
- Reciprocating Pumps;
- Rotary Pumps;
- Pump Comparisons.

M1. Part 3: Heat Transfer

- Modes of Heat Transfer;
- Cooling and Heating Sources;
- Heat Exchanger Types;
- Reboilers.

M1. Part 4: Separation Process

- Distillation;
- Absorption;
- Column Internals;
- Adsorption;
- Membranes.

M1. Part 5: Phase Separating Equipment

- Gas–Liquid Separators;
- Filter Separators and Coalescing Filters;
- Cyclone Separators;
- Liquid–Liquid Separators;
- Residence Time for Various Separator Applications;
- Filters.

Natural Gas Troubleshooting

M1. Part 6: Troubleshooting at the Well Site

- Increasing Gas Flow at the Wellhead;
- Enhancing Gas Flow: Additional Ideas;
- Wellhead Compression;
- Process Cooling in Remote Locations.

Module 2
Natural Gas Processing and Troubleshooting (2)

Natural Gas Processing

M2. Part 1: The Natural Gas Industry

- Sources of Natural Gas;
- Composition of Natural Gas;
- Classification;
- Principal Products and Markets;
- Product Specifications;
- Combustion Characteristics.

M2. Part 2: Gas Plant Processing

- Roles of Gas Plants;
- Plant Processes;

- Important Support Components;
- Contractual Agreements and Economics;
- Operational Measures.

M2. Part 3: Field Operations and Inlet Receiving

- Field Operations;
- Gas Hydrates;
- Inlet Receiving.

M2. Part 4: Compassion

- Fundamentals;
- Drivers;
- Types of Compressor;
- Capacity and Power Calculations;
- Reciprocating Compressors vs. Centrifugal Compressors.

M2. Part 5: Gas Treating

- Solvent Absorption Processes;
- Physical Absorption;
- Adsorption;
- Cryogenic Fractionation;
- Membranes;
- Nonregenerable Hydrogen Sulfide Scavengers;
- Biological Processes.

M2. Part 6: Gas Dehydration

- Water Content of Hydrocarbons;
- Gas Dehydration Processes.

M2. Part 7: Hydrocarbon Recovery

- Process Components;
- Liquids Removal Processes.

M2. Part 8: Nitrogen Rejection

- Nitrogen Rejection for Gas Upgrading;
- Nitrogen Rejection for Enhanced Oil Recovery Using Cryogenic Distillation.

M2. Part 9: Trace Component Recovery or Removal

- Helium;
- Mercury;
- Benzene, Toluene, Ethylbenzene, and Xylenes.

M2. Part 10: Liquids Processing

- Condensate Processing;
- NGL Processing.

Natural Gas Troubleshooting

M2. Part 11: Troubleshooting at the Dehydration and Compression Station

- Glycol Dehydration;
- Reciprocating Compressors;
- Reciprocating Engines;
- Loss in Centrifugal Compressor Capacity;
- Gas Turbine Driven Centrifugal Compressors;
- Light Hydrocarbon Distillation;
- Amine Regeneration and Scrubbing;
- Sulfur Plant Operation.

Module 3
Natural Gas Processing and Troubleshooting (3)

Natural Gas Processing

M3. Part 1: Acid Gas Processing and Disposal

- Properties of Sulfur;
- Sulfur Recovery Processes;
- Sulfur Storage;
- Acid Gas Disposal.

M3. Part 2: Transportation and Storage

- Gas;
- Liquids.

M3. Part 3: Liquefied Natural Gas (LNG)

- Gas Treating before Liquefaction;
- Liquefaction Cycles;
- Storage of Liquefied Natural Gas (LNG);
- Transportation;
- Regasification and Cold Utilization of Liquefied Natural Gas (LNG);
- Economics.

M3. Part 4: Capital Costs of Gas Processing Facilities

- Basic Premises for All Plant Component Cost Data;
- Amine Treating;
- Glycol Dehydration;
- NGL Recovery with Straight Refrigeration (Low Ethane Recovery);
- NGL Recovery with Cryogenic Processing (High Ethane Recovery) and Nitrogen Rejection;
- Sulfur Recovery and Tail Gas Cleanup;
- NGL Extraction Plant Costs for Larger Facilities;
- Corrections to Cost Data.

M3. Part 5: Natural Gas Processing Plants

- Plant with Sweet Gas Feed and 98% Ethane Recovery;
- Plant with Sour Gas Feed, NGL, and Sulfur Recovery;
- Plant with Sour Gas Feed, NGL Recovery, and Nitrogen Rejection.

Troubleshooting

M3. Part 6: Pipeline Problems

- Hydrates;
- Production Metering;
- Piping Pulsations;
- Corrosion and Fouling.

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