

HRODC Postgraduate Training Institute



A Postgraduate - Only Institution



#197

**Advanced Pipeline Engineering: Pipelines
for Petroleum – Oil and Gas –
Water, Solids, Onshore and Deepwater**

Programme

Leading To:

POSTGRADUATE DIPLOMA IN

Advanced Pipeline Engineering

A Division of HRODC Ltd. UK Reg. No. 6088763. V.A.T. Reg. No. 8958 765 38
Prof. Dr. R.B. Crawford - Director HRODC Postgraduate Training Institute
PhD (London), MEd.M. (Bath), Adv. Dip. Ed. (Bristol), PGCIS (TVU), ITC (UWI), MAAM, MAOM, LESAN, MSCOS, MISGS, Visiting Prof. P.U.P.





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HRODC Postgraduate Training Institute, A Postgraduate-Only Institution
Our UK Government's Verification and Registration

Our Institute is Verified by, and Registered with, the United Kingdom (UK) Register of Learning Providers (UKRLP), of the Department for Education (DfE). Its UK Provider Reference Number (UKPRN) is: 10019585 and might be located at: <https://www.ukrlp.co.uk/>.

Programme Coordinator:

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

- Doctor of Philosophy {(PhD) {University College London (UCL) - University of London}};
- MEd Management (University of Bath);
- Postgraduate (Advanced) Diploma 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;

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Postgraduate Full-Time and Short Courses
London, UK & International Locations

- Fellow of the Institute of Management Specialists;
- Human Resources Specialist, of the Institute of Management Specialists;
- 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);
- Member of ResearchGate;
- Executive Member of Academy of Management (AOM). There, his contribution incorporates the judging of competitions, review of journal articles, and guiding the development of conference papers. He also contributes to the Disciplines of:
 - 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.

Professor Dr. Crawford has been an Academic in the following UK Universities:

- University of London (Royal Holloway), as Research Tutor;
- University of Greenwich (Business School), as Senior Lecturer (Associate Professor), in Organisational Behaviour and Human Resource Management;
- University of Wolverhampton, (Wolverhampton Business School), as Senior Lecturer (Associate Professor), in Organisational Behaviour and Human Resource Management;
- London Southbank University (Business School), as Lecturer and Unit Leader.

His responsibilities in these roles included:

- Doctoral Research Supervisor;
- Admissions Tutor;
- Postgraduate and Undergraduate Dissertation Supervisor;
- Programme Leader;
- Personal Tutor

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

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- Bulk Commodity Suppliers;
- Bulk Shipping Engineers;
- Drilling Engineers;
- Geoscientists
- Mechanical Engineers;
- Mid-Stream Oil and Gas Storage Facilitators;
- Oil and Gas Engineers;
- Oil and Gas Project Managers,
- Oil and Gas Terminal Managers;
- Onshore Pipeline Engineers.
- Physicists;
- Pipe Fitters;
- Pipeline Engineers;
- Pipeline Inspectors;
- Pipeline Maintenance Crew;
- Pipeline Manufacturers;
- Pipeline Project Managers;
- Pipeline Risk Management Specialists;
- Pipeline Submarine Operators;
- Structural Engineers;
- Pipeline Valve Manufacturers;
- Subsea Pipeline Engineers;
- Tank Farm Engineers;
- Welding Specialist;
- Pipe 'T' Manufacturers;
- Pipe Bushings Manufacturers;
- Pipe Elbow Manufacturers;
- Pipe Flanges Manufacturers;
- All others desirous of heightening their expertise in varied aspects of Pipeline Engineering.

HRODC Postgraduate Training Institute
HQ : 122A Bhylls Lane, Castlecroft, Wolverhampton, West Midlands WV3 8DZ, UK

Prof. Dr. Ronald B. Crawford - Director

PhD (Uni London); M. Ed. M (Bristol); PGCIS (UWL); Adv. Dip. Sc. Ed (Bristol); Dip. Doc. Res. (Uni Wlv); F.I.M.S.; HR. S. (I.M.S.); Exec. M. AOM; M. AAM; M.I.S.G.S.; M.S.C.O.S.; M. RG. C.



Classroom-Based Duration and Cost:	
Classroom-Based Duration:	12 Weeks (5 Days per Week)
Classroom-Based Cost:	£45,000.00 Per Student
Online (Video-Enhanced) Duration and Cost	
Online Duration:	20 Weeks – 3 Hours Per Day, 6 Days Per Week
Online Cost:	£30,150.00 Per Student

Classroom-Based Programme 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;
- Postgraduate Diploma/ Diploma – Postgraduate –or
- Certificate of Attendance and Participation – if unsuccessful on resit.

Students and Delegates will be given a Selection of our Complimentary Products, which include:

- **Our Branded Leather Conference Folder;**
- **Our Branded Leather Conference Ring Binder/ Writing Pad;**
- **Our Branded Key Ring/ Chain;**
- **Our Branded Leather Conference (Computer – Phone) Bag – Black or Brown;**
- **Our Branded 8-16 GB USB Flash Memory Drive, with Course Material;**
- **Our Branded Metal Pen;**
- **Our Branded Polo Shirt.;**
- **Our Branded Carrier Bag.**

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

Delivery Locations:


1. Central London, UK;
2. Dubai, UAE;
3. Kuala Lumpur, Malaysia;
4. Amsterdam, The Netherlands;
5. Brussels, Belgium;
6. Paris, France; and
7. Durban, South Africa;
8. Other International Locations, on request.

Advanced Pipeline Engineering: Pipelines for Petroleum – Oil and Gas, Water, Solids, Onshore and Deepwater				
Leading to Postgraduate Diploma in Advanced Pipeline Engineering				
Module Number	Pre-existing Course #	Module Title	Page #	Credit Value
1		Pipeline Engineering Metrology	7	Single
2		Salient Issues in Pipeline Engineering: Pipe Flows	9	Single
3		Oil and Gas Pipelines and Piping Systems	12	Double
4		Pipeline Mechanical Engineering: Components, Fittings and Installation	18	Single
5		Deepwater Pipeline Engineering	21	Double
6		Pipeline Operations	28	Single
7		Pipeline Risk Management and Pipeline Integrity Management in Pipeline Engineering	30	Single
8	253	Health and Safety Management in Industrial and Flammable Environments	32	Single
9		Pipeline Engineering and The Regulatory and Technological Environments	37	Single
10		Pipeline Engineering Project Management	38	Single

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Advanced Pipeline Engineering: Pipelines for Petroleum – Oil and Gas, Water, Solids, Onshore and Deepwater, Programme

Leading to Postgraduate a Postgraduate Diploma in Advanced Pipeline Engineering

Programme Contents, Concepts and Issues

**Module 1
Pipeline Engineering Metrology**

M1 - Part 1: Exploring Linear and Angular Measurements, and Other Salient Issues in Metrology

- Calibration of Measurement and test Equipment;
- Recalibration Intervals;
- Sealing Adjusting Mechanisms;
- Handling and Storing of Test Measurement Equipment;
- Documenting Calibration Results;
- Uncovering Out-Of-Calibration State.
- Length Measurement;
- Calibration of Dimensional Standards and Measuring Instruments;
- 'Angular' Measurement.

M1 - Part 2: Mass Measurements

- Primary Standards and SI Units;
- Secondary and Working Standards;
- Mass and Weight;
- Mass Standards;
- Types and Classes of Mass Measurement;
- Industrial Weighing Systems;

- Accuracy Classes of Balances;
- Calibration of Balances.

M1 - Part 3: Pressure Measurements

- SI and Other Units;
- Absolute, Gauge and Differential Pressure Modes;
- Primary Standards;
- Spinning Ball Gauge Standard;
- Secondary Standards;
- Working Standards;
- Pressure Measuring Instruments;
- Calibration of Pressure Standards and Instruments.

M1 - Part 4: Measurement of Force

- SI and Other Units of Measurement;
- PRIMARY Standard;
- Secondary Standards;
- Force Measuring Instruments;
- Calibration of Force Standards and Test Instruments.

M1 - Part 5: Measurement of Temperature

- SI and Units;
- Thermodynamic Scale;
- Practical Temperature Scales;
- International Temperature Scale of 1990 (ITS-90);
- Industrial Thermometers;
- Calibration of Thermometers.

M1 - Part 6: Uncertainty of Measurement

- Fundamental Concepts;
- Recommendations of ISO Guide;
- Examples of Uncertainty Calibrations;
- Other relevant Issues Associated with Metrology;

Module 2

Salient Issues in Pipeline Engineering: Pipe Flows

M2 - Part 1: Pipelines: How they Differ

- Pipelines: A Contextual Definition;
- Brief History of Pipelines;
- Existing Major Pipelines;
- Importance of Pipelines;
- Freight (Solids) Transport by Pipelines;
- Types of Pipelines;
- Crude Oil Pipelines;
- Refined Products Pipelines;
- Natural Gas Pipelines;
- Components of Pipelines;
- Advantages of Pipelines.

M2 - Part 2: Single-Phase Incompressible Newtonian Fluid

- Flow Regimes;
- Local Mean Velocity and Its Distribution (Velocity Profile);
- Flow Equations for One-Dimensional Analysis;
- Hydraulic and Energy Grade Lines;
- Cavitation in Pipeline Systems;

- Pipe in Series and Parallel;
- Interconnected Reservoirs;
- Pipe Network;
- Unsteady Flow in Pipe.

M2 - Part 3: Single-Phase Compressible Flow in Pipe

- Flow Analysis of Ideal Gas:
 - The Ideal Gas Law;
 - Partial Pressure of Ideal Gas;
 - Equations of State and Ideal Gas Properties;
 - Ideal Gas Law Deviations;
 - Acoustic Velocity and Mach Number of Ideal Gas;
 - Ideal Gas Steady Isentropic Flow;
 - Low Temperature Behavior of Ideal Gas;
 - The Filling Process of Ideal Gas;
 - Cylinder Discharge of Ideal Gas;
 - Ideal Gas Discharge of Ideal Gas;
 - Solving Compressible Flow Problems Ideal Gas;
- Flow Analysis for Real (Non-Ideal) Gas:
 - Compressibility of Non-Ideal Gas;
 - High pressure Behaviour of Non-Ideal Gas;
 - Low Temperature Behaviour of Non-Ideal Gas;
 - Effect of intermolecular forces on Non-Ideal Gas;
- Work, Energy and Power Required for Compression of Ideal and Non-Ideal Gas.

M2 - Part 4: Non-Newtonian Fluids

- Classification of Non-Newtonian Fluids;
- Rheological Properties and Laws of Non-Newtonian Fluids;
- Non-Newtonian Pipe Flow: Laminar;
- Non-Newtonian Pipe Flow: Turbulent.

M2 - Part 5: Flow of Solid/Liquid Mixture in Pipe (Slurry Pipelines)

- Flow Regimes;
- Pseudo-homogenous Flow;
- Heterogeneous Flow;
- Intermediate Flow Regime;
- Practical Considerations.

M2 - Part 6: Flow of Solid/Air Mixture Through Pipe

- Types of Pneumatic Conveying;
- Flow Characteristics;
- System Layouts;
- System Design;
- Safety Considerations;
- Analyses.

M2 - Part 7: Instrumentation, Pigging and Capsules Pipelines

- Flow Meters;
- Sensors and Equipment;
- Pigs (Scrapers).
- Pneumatic Capsule Pipeline (PCP);
- Hydraulic Capsule Pipeline (HCP);
- Coal Log Pipeline (CLP).

M2 - Part 8: Pumps and Turbines

- Energy Conversions by Pumps and Turbines;
- Types of Pumps and Turbines;
- Pump Drivers;
- Coupling Pumps to Drivers;
- Pump Control, Operation, and Maintenance;
- Pump Selection;
- Compressors, Blowers, and Fans;
- Turbines;
- Dimensionless Parameters.

Module 3 (Double Credit) Oil and Gas Pipelines and Piping Systems

M3- Part 1: Transportation Pipelines

- Fluid Categories and Design;
- Mechanical Design;
- Pipeline Wall Thickness Calculating Basis;
- Materials;
- Pipeline Routine Selection;
- Pipeline Protection and Marking;
- Crossings.

M3- Part 2: Construction Guidelines for Onshore Transportation

- Material Handling;
- Right of Way;
- Ditching;
- Supply, Storing, Handling and Use of Explosive Materials;

- Preparation of Pipes;
- Welding and Laying of Pipes;
- Backfilling;
- Crossings;
- Casing Installations;
- Prefabricated Assemblies;
- Clean-up Operation.

M3– Part 3: Welding of Transportation Pipeline

- Materials;
- Qualification of Welding Procedures for Welds Containing Filler Metal Additives;
- Testing of Welding Joints;
- Qualification of Welders;
- Production Welding;
- Inspection and Testing of Production Welds;
- Acceptance Standards for Non-destructive Testing;
- Repair and Removal of Defects;
- Procedures for Non-destructive Testing.

M3– Part 4: Transportation Pipelines Pressure Testing

- Materials, Equipment and Personnel for Testing;
- Cleaning and Gaging Operations;
- Testing Operations;
- Defects, Repair or Renewals, and Retesting;
- Final Testing;
- Testing of Unchecked Joints, Fabricated Assemblies and Valves;
- Dewatering and Drying;
- Recording Test Data;
- Safety Considerations During Tests.

M3– Part 5: Pipe Supports

- Structural Attachments;
- Supports for Insulated Pipes and Attachments;
- Elevated Pipe Supports;
- Fabrication and Installation of Pipe Supports;
- Metallic and Non-Metallic Coatings;
- Testing of Pipe Hanger and Support Component.

M3– Part 6: Gaging, Cleaning, and Removing Liquids from Pipelines

- Basic Design and Construction;
- Pig Trap System Component;
- Inspection During Manufacturing;
- Tests and Certificates;
- Information for Manufacturer/Supplier.

M3– Part 7: General Requirements for the Purchase of Pipes for Use in Oil and Gas Industries

- Quality Assurance System;
- Compliance;
- Information to be Supplied by the Purchaser;
- Process of Manufacture and Material;
- Material Requirements;
- Dimensions, Weights, Lengths, Defects, and End Finishes;
- Inspection and Testing;
- Coating and Protection;
- Manufacturing Procedure and Welding Procedure;
- Repair of Defects by Welding.

M3– Part 8: Piping Material Selection

- Identification of Piping Classes;
- Selection of Piping Cases;
- Design Considerations;
- Selection of Basic Material;
- General Requirements for Carbon Steel Piping;
- General Requirements for Piping in Hydrogen Fluoride Service;
- Transport and Storage;
- General Requirements for Cement Lining in New Pipelines;
- Quality Control;
- Requirements for Glass-Fibre-Reinforced Epoxy Pipes and Fittings;
- Pipe Flanges Pressure Temperature Rating.

M3– Part 9: Plant Piping Systems

- Fabrication;
- Dimensional Tolerances;
- Pipe Joints;
- Welding;
- Screwed Piping;
- Flanged Joints;
- Bending and Forming;
- Field Installation;
- Installation of Flanges;
- Installation of Valves;
- Installation of Instrument and Related Piping;
- Vents and Drains;
- Pump, Compressor, and Steam Turbine Piping;
- Buried Piping;
- Inspection and Testing.

M3– Part 10: Welding of Plant Piping Systems

- Qualification of Welding Procedure and Welder Performance and Test Records;
- Production Welding;
- Inspection of Production Weld;
- Weld Defects and Repair;
- Pre- and Post-weld Heat Treatment.

M3– Part 11: Plant Piping Systems Pressure Testing

- Hydrostatic Pressure Testing;
- Pneumatic Pressure Testing;
- Documentation Requirements.

M3– Part 12: Engineering Aspects for Plant Piping Systems

- Design Requirements;
- Design Procedure;
- Above Ground Piping Systems;
- Piping Design;
- Underground Piping Systems;
- Underground Piping Design.

M3– Part 13: Strainers and Filters

- Strainer and Filter Design, Fabrication, and Assembly;
- Material Dimensions;
- Types of Strainers;
- Inspection and Tests;
- Painting and Protection.

M3– Part 14: Corrosion in Pipelines and Piping Systems

- Corrosive Environments;
- The Materials of Engineering;
- Corrosion Prevention Measures;
- Material Selection Procedure;
- CR and CAs;
- Materials Appreciation and Optimization;
- Corrosion in Oil and Gas Products;
- Special Consideration in Refineries and Petrochemical Plants;
- Engineering Materials.

M3– Part 15: Control Valves

- Control Valve Body Design and Requirements;
- Control Valve Materials Selection;
- Control Valve Bodies;
- Control Valve Body Size and Flange Rating;
- Control Valve Sizing and Characteristics;
- Control Valve Manifold Design;
- Control Valve Block and Bypass;
- Control Valve Packing and Sealing;
- Control Valve Actuators;
- Actuator Construction Materials;
- Control Valve Accessories;
- Solenoid Valves;
- Inspection, Tests, and Repair of Defects;
- Specified Maximum Leakage;
- Hydrostatic Testing of Control Valves;
- Pressure Test Requirements for Butterfly Valves;
- Linear Motion Control Valve Types;
- Rotary Motion Control Valve Types;

- Sizing Theory and Applications;
- Control Valve Installation;
- Manifold Piping Arrangement.

Module 4

Pipeline Mechanical Engineering: Components, Fittings, and Installation

M4 - Part 1: Pipeline Types, Components, Fittings and Installation (1)

- Line Pipes;
- Classification of Line Pipes;
- Specifics of Ordering a Line Pipe;
- General Operation of Pipeline;
- Automatic Control System;
- Pipeline Load Calculation and Control;
- Pipeline Performance Analysis and Design;
- Pipeline Maintenance;
- **Forged Steel** Fittings;
- Nonmetallic Flat Gaskets for Pipe Flanges;
- Malleable Iron Threaded Pipe Unions.

M4 - Part 2: Pipeline Types, Components, Fittings and Installation (2)

- Iron Pipe Flanges and Flanged Fittings;
- **Wrought Stainless Steel**;
- Corrosion Resistant Flanged-End Gate Valves
- Ferrous Pipe Plugs;
- Bushings;
- Pipe Flanges and Flanged Fittings;
- Mechanical Joints;
- Pipe Elbows;

- Pipe 'T';
- Fittings and Forgings.

M4 - Part 3: Pipeline Types, Components, Fittings and Installation (3)

- Pressure Testing: Pneumatic and Hydro Test;
- Purpose of Pressure Testing;
- Leak Testing;
- Degradation in Service;
- Fitness-For Service;
- Maintenance, Reliability and Failure Analysis;
- Repair Techniques;
- Plastic Pipe Handling;
- Valve: Types, Function and Effectiveness;

M4 - Part 4: Pipeline Types, Components, Fittings and Installation (4)

- Internal Pipe Pressure;
- External Pipe Pressure;
- Relief Valves;
- Pressure Regulating Valves;
- Pipeline Layout and Supports;
- Flexibility and Fatigue;
- Pipe Vibration Control;
- Pipe Fluid Transients;

M4 - Part 5: Pipeline Types, Components, Fittings and Installation (5)

- Wind Design for Pipes;
- Seismic Design and Retrofit;
- Buried Pipe;
- Low Frequency Versus High Frequency Welding;
- Hyperbaric **Welding**;

- Submerged Arc Welded Pipes;
- Electron Beam Welding;
- Metallic Gaskets for Pipe Flanges;
- Ring-Joint;
- Spiral-Wound;
- Jacketed Gaskets;
- Factory-Made Wrought Steel;

M4 - Part 6: Pipeline Types, Components, Fittings and Installation (6)

- Pipeline Welding;
- Putt Welding;
- Butt Welding;
- **Butt-Welding** Fittings;
- Wrought Steel Butt Welding;
- Socket-Welding and Threaded;
- Risks of Underwater Welding;
- Pipeline Defects and Corrective Actions.

M4 - Part 7: Pertinent Issues in the Planning and Construction of Pipelines

- Procedures Involved in Planning and Construction of New Pipelines;
- Measures to Allow Pipeline Expansion;
- Bending of Pipe;
- Connecting Pipes;
- Boring and Tunnelling to Install Pipe-Trenchless Technologies;
- Pipeline Construction in Marsh and Swamp;
- Offshore Construction;
- Cold-Region Construction.

Module 5 (Double Credit) Deepwater Pipeline Engineering

M5 - Part 1: Types of Maritime Pipeline Installations and Elements

- Trunk lines;
- Export Pipelines;
- In-field Flowlines;
- Pipe-in-Pipe;
- Pipeline Bundles;
- Pipeline Tie-in Systems;
- Risers;
- PLEMS;
- Riser Gravity Bases;
- SDA Clamps;
- SDAs;
- SSIV Protective Structure.

M5 - Part 2: Geophysical Investigations

- Integrated Geophysical Investigations;
- Foundation Concept Selection and Design;
- Pipeline Geomechanics;
- Foundation Analysis and Centrifuge Model Testing.

M5 - Part 3: Deepwater Integrated Geosciences Studies

- Recent Technological Developments in Related Geoscience;
- Objective of an Integrated Site Investigation;
- Spatial Variability and Data Uncertainty;
- Planning Study with 3-D Seismic Data;
- Acquiring 3-D Seismic Data.

- Geophysical Site Survey:
 - Data Acquisition;
 - Deepwater Geophysical Tools;
 - Deepwater Geophysical Survey.
- Geotechnical Site Investigation:
 - Deepwater Data Acquisition.

M5 - Part 4: Geotechnical Site Investigation

- Performing the Geotechnical Site Investigation:
 - Sampling Procedures;
 - Deepwater In Situ Testing Methods;
 - Cone Penetrometer Testing;
 - Use of CP I' Data;
 - In Situ Vane Shear Testing;
 - Use of VST Data;
 - In Situ Pie/probe.
 - Laboratory Testing Program;
 - In Situ Data Interpretation;
 - Interpreted Shear Strength Profile;
 - Uncertainty in Data Interpretation;
 - Final Geologic/Geotechnical Model Integration;
 - Site Favourability Assessment;
 - Foundation Site Evaluation.
- Objective and Benefits of Integrated Geosciences Studies.

M5 - Part 5: Deepwater Foundation Design (1)

- Design Contextualisation;
- Deepwater Foundation Applications:
 - Foundations for Moorings;
 - Foundations for Seafloor Facilities.
- Foundation Design Requirements:
 - Analytical Procedures;
 - Interpreted Soil Properties;
 - Soil Strength Profile.
- Deepwater Anchors;
- Anchor Line:
 - Post Tensioning of the Anchor;
 - Interaction Tensioning of the Anchor.

M5 - Part 6: Deepwater Foundation Design (2)

- Pipe Piles:
 - Driven Pipe Piles;
 - Axial Capacity;
 - Lateral Capacity;
 - Jetted Piles.
- Drilled and Grouted Piles;
- Suction Caisson:
 - Suction Caisson Design Geometry;
 - Key Design Factors;
 - Design Procedures;
 - Installation Procedure.
- Vertical Loaded Anchors (VLA):
 - VLA Geometry;
 - Key Design Factors;
 - Installation Procedures.

M5 - Part 7: Deepwater Foundation Design (3)

- Anchor Installation Plan and Performance;
- SEPLA;
- Gravity-installed Anchors:
 - Installation Procedures;
 - Design Methods.
- Foundations for Seafloor Facilities:
 - Mudmat Design Geometry;
 - Key Design Factors;
 - Design Procedures.

M5 - Part 8: Driven Pile Design for Tension Leg Platforms

- Pile Installation;
- Design of Piles;
- Preliminary Design Considerations;
- Soil Properties;
- Axial Capacity;
- Sustained (Creep) Loading;
- Cyclic Stresses;
- Installation Setup;
- Lateral Capacity;
- Installation Clearances;
- Installation Stability;
- Drivability and Driving Induced Fatigue Calculations.

M5 - Part 9: Pipeline Geohazards for Arctic Conditions

- Ice Gouging:
 - Ice Gouge Surveys;
 - Ice Gouging and Subgouge Displacements;
 - Pipeline Strain Calculations.
- Strudel Scour;
- Stamukha Pits:
 - Stamukha - Pipeline Interaction Frequency.

M5 - Part 10: The Application of Centrifuge Model Testing to Deepwater Geotechnical Problems

- Principles of Centrifuge Model Testing;
- Previous Centrifuge Model Testing;
- Suction Caissons;
- Alternate Deepwater Foundation Solution:
 - Suction Embedded Plate Anchors;
 - Torpedo Anchors.
- Conductor Fatigue;
- Flowlines and Pipelines;
- Facilities. Logistics, and Rationale for Centrifuge Modelling

M5 - Part 11: Reliability of Offshore Foundations: The Analysis

- Methods for Reliability Analysis.
 - Simplified Analytical Models;
 - Analytical Approximation - First Order Reliability Method;
 - Numerical Approximation - Monte Carlo Simulation.
- Practical Implementation:
 - Foundation Capacities;
 - Foundation Loads;

- System versus Components;
 - Target Reliability;
- Soil-pipe Interaction for Subsea Flowlines;

M5 - Part 12: Reliability of Offshore Foundations: The Design

- Design Considerations:
- Lateral Buckling;
 - Flowline Walking;
 - Upheaval Buckling.
- Analysis Methodology:
- Lateral Buckling;
 - Flowline Walking;
 - Upheaval Buckling;
 - Modelling Scheme.
- Examples of:
- Lateral Soil-pipe Resistance;
 - Lateral Buckling;
 - Upheaval Buckling;
 - Walking.
 - Modelling of Soil-pipe Interaction

M5 - Part 13: Reliability of Offshore Foundations: Soil-Pipe Resistance

- Lateral Soil-pipe Resistance:
- Vertical Embedment Solution;
 - Lateral Breakout Resistance;
 - Lateral Residual Resistance;
 - Example Lateral Resistance Model Calibration.
- Upheaval Soil-pipe Resistance:
- Upheaval Buckling Resistance;
 - Buried Lateral Resistance.

M5 - Part 14: Geomaterial Modelling and Applications: Constitutive Modelling for Geomaterials

- Critical State and Capped Plasticity Models;
 - Basics of Plasticity Modelling;
 - Geometric Representation of Stress;
 - Cam clay Model;
 - Capped Plasticity Model;
 - Single-surface Critical State Models;
- Traditional Strength Models;
- Recent Developments.

M5 - Part 15: Geomaterial Modelling and Applications: Definitive Element Applications

- Plane Strain Bearing Capacity Evaluation;
 - Purely Cohesive Material;
 - Material with Cohesion and Friction.
- Suction Pile Lateral Resistance:
 - Torpedo Pile Penetration.
- Cyclic Response of Axially Loaded Piles:
 - Modelling of Element States of Stress;
 - Modelling with Continuum Model.
- Rock Mechanics Application:
 - HISS/DSC Model Calibration for Berea Sandstone.

Module 6 Pipeline Operations

M6 - Part 1: Oil Pipeline Operations

- Crude Oil Lines;
- Refined Products Lines;
- Field Operations to Central Control Room;
- Crude Oil Field Operations;
- Refined Products Field Operations;
- Planning and Scheduling Operations;
- Hydraulic Concepts – Practical Applications in Mainline Operations;
- Routine Operations;
- Abnormal Operations;
- Operator Training.

M6 - Part 2: Natural Gas Pipeline Operations

- Natural Gas Lines;
- Gathering Lines;
- Gas Processing Plants;
- LNG Facilities Operations;
- Pipeline Hubs;
- From Field Operations to Central Control Room Operations;
- Natural Gas Operations;
- Planning and Scheduling Operations;
- Monitoring and Controlling the Pipeline;
- Hydraulic Concepts;
- Routine Operations;
- Quality Control;
- Abnormal Operations;

- Operator Training.

M6 - Part 3: Petrochemical and LPG Pipeline Operations

- Definitions;
- Product Characteristics;
- Compressibility;
- Leak Detection;
- Measurement;
- Quality;
- Commissioning and Decommissioning;
- Storage;
- Hydraulics.

M6 - Part 4: Offshore Pipelines

- Line Design;
- Installing Subsea Pipelines;
- Bottom Conditions;
- Risers.

M6 - Part 5: Controls, Leak Detection and Maintenance

- Design and Control;
- Leak Detection;
- Leak Releases;
- Leak Detection Systems;
- Leak Detection Methods;
- Internal Systems;
- External Systems;
- Maintenance: What Causes Release;
- Damage Prevention;
- Finding Potential Problems before They Become Failures;

- Risk and Pipeline Safety;
- Integrity Management Plan;
- Repairs;
- Other Maintenance Activities.

Module 7 Pipeline Risk Management and Pipeline Integrity Management in Pipeline Engineering

M7 - Part 1: Risk, Risk Management and Integrity Management (1)

- Relationship Between Risk and Integrity Management;
- Data Collection Methods;
- Role of Data Collection;
- Data Collection and Integration;
- Making Sense of Collected Data;
- Risk Assessment;
- Risk Assessment Tools;
- Hazard and Operability (HAZOP) Study;
- Hazards and Threats to a Pipeline System;

M7 - Part 2: Risk, Risk Management and Integrity Management (2)

- Regulatory Approach to Liquid Pipeline Risk Management;
- Elements of Risk Management;
- Threats Leading to Risk;
- Causes and Rates of Internal Corrosion;
- Corrosion Effects
- Assessing Remaining Strength of Corroded Pipe;
- Modified Criterion for Evaluating the Remaining Strength of Corroded Pipe;
- Methods of Corrosion Control;
- Handling uncertainty;
- Pipeline Reliability Assessment;

- Influence of Residual Stress on Pipeline Reliability;

M7 - Part 3: Risk, Risk Management and Integrity Management (3)

- Variable Sensitivities;
- Gas Pressure Fluctuation;
- Residual Stress Data.
- Managing Potential Risks;
- Pipeline Integrity Evaluation and Engineering Assessment:
- Pipeline Integrity Management;
- Identification of Integrity Threats;
- Absolute Risk Estimates Risk Management

M7 - Part 4: Pipeline Risk Assessment and Integrity Monitoring

- Pipeline Risk Assessment;
- Pipeline Inspection and Survey Techniques;
- Pipeline Protection;
- Pipeline Integrity Monitoring;
- High Consequence Area Analysis;
- Explosion Threat, Aversion and Management;
- Liquid Systems High Consequence Areas;
- Definition of High Consequence Areas.

M7 - Part 5: Protection of Pipelines against Abrasion, Freezing and Corrosion

- Lining, Coating, and Wrapping
- Insulation, Tracing, Jacketing, and Electric Heating
- Protection against Corrosion
- Failure Mode and Effect Analysis (FMEA);
- Fault Tree Analysis;
- Cause and Effect (Ishikawa) Diagrams;

Module 8 Health and Safety Management in Industrial and Flammable Environments

M8 - Part 1: Salient Issues in Industrial Safety and Health Management

- The Safety and Health Manager;
- A Reasonable Objective;
- Safety Vs. Health;
- Workers' Compensation;
- Occupational Injuries Vs. Occupational Illness;
- Concepts of Hazard Avoidance;
- Different Approaches of Eliminating or Avoiding Hazards:
 - Enforcement Approach;
 - Psychological Approach;
 - Engineering Approach:
 - ✚ Application of the Three Lines of Defense Concept;
 - ✚ Safety Factors.
 - Analytical Approach.
- Failure Modes and Effects Analysis (FMEA);
- Fault Tree Analysis;
- Toxicology;
- Cost Benefit Analysis;
- Hazard Classification Scale.

M8 - Part 2: Prioritizing Workers' Health and Safety Interest while in the Workplace

- Facets of Ergonomics;
- Ergonomics and the HSE;
- Designing Safety Features into Workplace Machines;
- Musculoskeletal Disorders (MSD);
- Ergonomic Risk Analysis;
- Sources of Ergonomic Hazards:
 - The work itself;
 - The workstation;
 - The work piece or tools;
 - The environment.
- Health and Toxic Substances:
 - Toxic Substances;
 - Irritants;
 - Systemic Poisons;
 - Depressants;
 - Asphyxiants;
 - Carcinogens.
- Personal Protective and First Aid;
- Personal Protective and Equipment:
 - Hearing Protection;
 - Eye and Face Protection;
 - Protection Need Assessment;
 - Personal Protective Equipment Training;
 - Respiratory Protection:
 - ✚ Respirator Plan;
 - ✚ Fit Test.
 - Head Protection;
 - Miscellaneous Personal Protective Equipment.
- First Aid.

M8 - Part 3: Health and Safety Management in Flammable Environments

- Fire Protection;
- Mechanics of Fire;
- Fire Prevention;
- Emergency Evacuation;
- Alarm Systems;
- Fire Detection Systems;
- Fire Brigades;
- Fire Extinguishers;
 - Standpipe Hose Systems;
 - Automatic Sprinkler Systems;
 - Fixed Extinguishing Systems;
 - Dry Chemical Systems.
- Dangerous Substances:
 - Liquids;
 - ✚ Extremely Flammable;
 - ✚ Highly Flammable;
 - ✚ Flammable.
 - Dusts;
 - Gases;
 - Solids;
 - Oxygen;
 - Reactive Chemicals;
 - Other Fire and Explosion Hazards.
- Regulations;
- Safe working with Flammable Substances;
 - Safety Principles; VICES
 - ✚ Ventilation;
 - ✚ Ignition
 - ✚ Containment;
 - ✚ Exchange;

✚ Separation.

➤ Emergencies.

M8 - Part 4: Safety Precautions and Safeguarding

- Machine Guarding;
- Mechanical Hazards;
- Guarding by Location or Distance;
 - Tag-outs and Locks;
 - Zero Mechanical State;
 - Interlocks;
 - Trip Bars;
 - Fan Blade Guards;
 - Anchoring Machines;
- Safeguarding the Point of Operation:
 - Guards:
 - ✚ Die Enclosures;
 - ✚ Fixed Barriers;
 - ✚ Interlocked Barriers;
 - ✚ Adjustable Barriers;
 - ✚ Awareness Barriers.
 - Devices:
 - ✚ Gates;
 - ✚ Presence Sensing Devices;
 - ✚ Pullbacks;
 - ✚ Sweeps;
 - ✚ Hold-outs;
 - ✚ Two Hand Controls;
 - ✚ Two Hand Trips.
- Heat Processes;
- Grinding Machine;
- Saws;
- Miscellaneous Machine Guarding;

M8 - Part 5: Emergency Risk Incident Management

- Definition;
- Risk Management Model:
 - Risk Identification;
 - Risk Evaluation;
 - Prioritising Risk;
 - Risk Control Measures;
 - ✚ Risk Avoidance;
 - ✚ Implementation of Control Measures;
 - ✚ Risk Transfer.
 - Risk Monitoring;
 - Evaluation of Effectiveness of Risk control Measures.

Module 9 Pipeline Engineering and The Regulatory and Technological Environments

M9 - Part 1: The Regulatory Environment

- Coming to Terms with The Regulatory Environment;
- Community Relations;
- Dealing with Wildlife Habitat;
- Addressing Surface Water;
- Working with Underground Water;
- Working with Large Bodies of Water;
- Working Within Environmental Regulation;
 - Using GIS to Support Regulatory Compliance;
 - Reviewing Some Regulatory Authorities and the Legislation that they Have Instituted;
- Using Geographic Information in Pipeline Engineering;
- Laser Scanning in Pipeline Engineering.

M9 - Part 2: Geomatics and the Pipeline Value Chain: From Planning to Service

- Spatial Data and Spatial Data Management;
- Spatial Data Types;
- Data Specification;
- Data Management;
- Enterprise Data Integration (Image).

M9 - Part 3: Pipeline Engineering Design

- Data Centralization for Pipeline Projects;
- Front End Engineering Design Line Pipe;
- Front End Engineering – Facilities;
- Detailed Engineering.

Module 10 Pipeline Engineering Project Management

M10 - Part 1: Project Initiation

- Salient Issues to Pipeline Development Projects;
- The Concepts of Stakeholders VS Shareholder;
- The Project Management Concept;
- Pre-feasibility and Feasibility Studies;
- Project Life Cycle;
- Project Life Cycle Phases;
- Project Life Cycle Management;
- Project Portfolio Management System;
- Project Co-ordination;
- Project Sustainability;
- Pre-Project Commissioning;

- Basic Steps of the Project Initiation Phase;
- Using Project Selection Models/Methods:
- Criteria for Choosing Project Selection Models;
- Nature of Project Selection Models;
- Critical Factors to Ensure your Project is Successful.

M10 - Part 2: Project Planning Process

- Defining the Project Scope;
- Project Priority;
- The Triple Constraints;
- Work Breakdown Structure (WBS)
- Process Breakdown Structure;
- Responsibility Matrix;
- Project Planning Process;
- Resources Needed for the Project Time Management;
- Defining Activity;
- Sequencing Activity;
- Estimating Activity Resource;
- Estimating Activity Duration;
- Schedule Development;
- Schedule Control.

M7 - Part 3: Project Planning Process: Cost Management

- Other Practical Considerations in Developing Networks.
- Project Cost Management:
 - Cost Estimating;
 - Cost Budgeting;
 - Cost Control.
- Project Quality Management:
 - Quality Planning;

- Performing Quality Assurance;
- Performing Quality Control.
- Developing the Project Plan;
- Creating a Project Network Diagram;
- Obtaining Plan Approval;
- Evaluating the Project Charter.

M7 - Part 4: Project Execution

- Executing the Tasks Defined in the Project Plan;
- The Roles of the Team;
- The Pure Project Organisation;
- Matrix Management;
- Structure Selection;
- Mixed Organisational Structures and Coordination;
- Project Human Resource Management:
 - Human Resource Planning;
 - Acquire Project Team;
 - Develop Project Team.
- Team Work.

M7 - Part 5: Project Monitoring

- Monitoring Mechanisms;
- Monitoring tools;
- Participatory Monitoring;
- Steps to Participatory Monitoring Techniques;
- The Purpose of Project Monitoring and Evaluation;
- Key Principles of Project Monitoring and Evaluation;
- Critical Success Factors of Project Monitoring and Evaluation;
- Project Audit;
- Types of Project Audit;
- Contents of the Project Audit.

M7 - Part 6: Project Evaluation

- The Project Evaluation Phase;
- Programme Evaluation;
- Evaluation Outputs and the Project/Programme Cycle;
- The Objectives of Programme Evaluation;
- Evaluation Steps;
- Broad Evaluation Design Strategies;
- Performance Logic Chain Assessment;
- Pre-implementation Assessment;
- Process Implementation Evaluation;
- Rapid Appraisal;
- Case Study;
- Impact Evaluation;
- Meta- Evaluation;
- Characteristics of Quality Evaluations;
- Types of Evaluation.

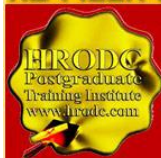
Postgraduate Diploma, Postgraduate Certificate, and Diploma – Postgraduate - Short Course Regulation

Postgraduate Certificate, Postgraduate Diploma, and Diploma – Postgraduate: Their Distinction, Credit Value and Award Title

Postgraduate Short Courses of a minimum of five days' duration, are referred to as Diploma – Postgraduate. This means that they are postgraduate credits, towards a Postgraduate Certificate and Postgraduate Diploma. Postgraduate Certificate and Postgraduate Diploma represent Programmes of Study, leading to Awards bearing their title prefixes. While we, refer to our short studies, of 5 days to five weeks, as 'Courses', those with duration of 6 weeks and more are labelled 'Programmes'. Nevertheless, in line with popular usage, we often refer to all study durations as 'Courses'. Another mark of distinction, in this regard, is that participants

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Advanced Pipeline Engineering: Pipelines for Petroleum - Oil and Gas, Water, Solids, Onshore and Deepwater, Programme, Leading to Postgraduate Diploma in Advanced Pipeline Engineering in a short course are referred to as 'Delegates', as opposed to the term 'Students', which is confined to those studying a Postgraduate Programme.

Courses are of varying Credit-Values; some being Single-Credit, Double-Credit, Triple-Credit, Quad-Credit, 5-Credit, etc. These short courses accumulate to Postgraduate Certificate, with a total of 180 Credit-Hours (= 6 X 5-Day Courses or 3 X 10-Day Courses), or Postgraduate Diploma, with a total of 360 Credit-Hours (= 12 X 5-Day Courses or 6 X 10-Day Courses).

Delegates studying courses of 5-7 days' duration, equivalent to 30-42 Credit-Hours (Direct Lecturer Contact), will, on successful assessment, receive the Diploma – Postgraduate Award. This represents a single credit at Postgraduate Level. While 6-day and 7-day courses also lead to a Diploma – Postgraduate, they accumulate 36 and 42 Credit Hours, respectively.

Postgraduate Certificate, Postgraduate Diploma, and Diploma – Postgraduate Assessment Requirement

Because of the intensive nature of our courses and programmes, assessment will largely be in-course, adopting differing formats. These assessment formats include, but not limited to, in-class tests, assignments, end of course examinations. Based on these assessments, successful candidates will receive the Diploma – Postgraduate, Postgraduate Certificate, or Postgraduate Diploma, as appropriate.


In the case of Diploma – Postgraduate, a minimum of 70% overall pass is expected. In order to receive the Awards of Postgraduate Certificate and Postgraduate Diploma, candidates must have accumulated at least the required minimum 'Credit-Hours', with a pass (of 70% and above) in at least 70% of the courses taken.

Delegates and students who fail to achieve the requirement for Postgraduate Certificate, Postgraduate Diploma, or Diploma - Postgraduate - will be given support for 2 re-submissions for each course. Those delegates who fail to achieve the assessment requirement for the Postgraduate Diploma or Diploma - Postgraduate - on 2 resubmissions, or those who elect not to receive them, will be awarded the Certificate of Attendance and Participation.

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Diploma – Postgraduate, Postgraduate Certificate, and Postgraduate Diploma

Application Requirements

Applicants for Diploma – Postgraduate – Postgraduate Certificate, and Postgraduate Diploma are required to submit the following documents:

- Completed Postgraduate Application Form, including a passport sized picture affixed to the form;
- A copy of Issue and Photo (bio data) page of the applicant's current valid passport or copy of his or her Photo-embedded National Identity Card;
- Copies of credentials mentioned in the application form.

Admission and Enrolment Procedure

- On receipt of all the above documents we will assess applicants' suitability for the Course or Programme for which they have applied;
- If they are accepted on their chosen Course or Programme, they will be notified accordingly and sent Admission Letters and Invoices;
- One week after the receipt of an applicant's payment or official payment notification, the relevant Course or Programme Tutor will contact him or her, by e-mail or telephone, welcoming him or her to HRODC Postgraduate Training Institute;
- Those intending to study in a foreign country, and require a Visa, will be sent the necessary immigration documentation, to support their application;
- Applicants will be notified of the dates, location and venue of enrolment and orientation, where appropriate.

Modes of Study and Duration of Postgraduate Certificate and Postgraduate Diploma Programmes

There are two delivery formats for Postgraduate Certificate and Postgraduate Diploma Programmes, as follows:

1. Intensive Full-time (Classroom-Based) Mode, lasting 3 months for Postgraduate Diploma, and 6 weeks for Postgraduate Certificate. These durations are based on six hours' lecturer-contact per day, five days (30 hours) per week, for Postgraduate Diploma.
2. Video-Enhanced On-Line Mode. This interactive online mode lasts twenty (20) weeks, for Postgraduate Diploma, and ten (10) weeks for Postgraduate Certificate. Our calculation is based on three hours per day, six days per week.

Whichever study mode is selected, the aggregate of 360 Credit Hours must be achieved.

Introducing Our Video-Enhanced Online Study Mode


In a move away from the traditional online courses and embracing recent developments in technology-mediated distance education, HRODC Postgraduate Training Institute has introduced a Video-Enhanced Online delivery. This Online mode of delivery is revolutionary and, at the time of writing, unique to HRODC Postgraduate Training Institute.

You are taught as individuals, on a one-to-one or one-to-small-group basis. You see the tutor face to-face, for the duration of your course. You will interact with the tutor, ask and address questions; sit examinations in the presence of the tutor. It is as real as any face-to-face lecture and seminar can be. Choose from a wide range of Diploma – Postgraduate Courses and an increasing number of Specialist Postgraduate Certificate and Postgraduate Diploma Programmes. You might also accumulate Postgraduate Short Courses, via this mode of study, over a 6-year period, towards a Postgraduate Certificate or Postgraduate Diploma.

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Key Features of Our Online Study: Video-Enhanced Online Mode

- The tutor meets the group and presents the course, via Video, in a similar way to its classroom-based counterpart.
- All participants are able to see, and interact with, each other, and with the tutor;
- They watch and discuss the various video cases and demonstrations that form an integral part of our delivery methodology.
- Their assessment is structured in the same way as it is done in a classroom setting;
- The Video-Enhanced Online mode of training usually starts on the 1st of each month, with the cut-off date being the 20th of each month, for inclusion the following month;
- Its duration is twice as long as its classroom-based counterpart. For example, a 5-day (30 Credit Hours) classroom-based course will last 10 days, in Video-Enhanced Online mode. This calculation is based on 3 hours tuition per day, adhering to the Institute's required 30 Credit-Hours;
- The cost of the Video-Enhanced Online mode is 67% of similar classroom-based courses;
- For example, a 5-day classroom-based course, which costs Five Thousand Pounds, is only Three Thousand Three Hundred and Fifty Pounds (£3,350.00) in Video-Enhanced Online Mode.

10-Week Video-Enhanced Online Postgraduate Certificate and 20-Week Video-Enhanced Online Postgraduate Diploma

You might study an Online Postgraduate Certificate or Online Postgraduate Diploma, in 10 and 20 weeks, respectively, in the comfort of your office or homes, through HRODC Postgraduate Training Institute's Video-Enhanced Online Delivery. We will deliver the 180 Credit-Hours and 360 Credit-Hours, in line with our regulation, through 'Direct-Lecturer-Contact', within the stipulated timeframe. We aim to fit the tuition around your work, family commitment and leisure, thereby enhancing your maintenance of an effective 'work-study-life-style balance', at times convenient to you and your appointed tutor.

Cumulative Postgraduate Certificate and Postgraduate Diploma Courses

All short courses can accumulate to the required number of Credit-Hours, for the Postgraduate Certificate and Postgraduate Diploma, over a six-year period from first registration and applies to both general and specialist groupings. In this regard, it is important to note that short courses vary in length, the minimum being 5 days (Diploma – Postgraduate) – equivalent to 30 Credit Hours, representing one credit, as is tabulated below.


On this basis, the definitive calculation on the Award requirement is based on the number of hours studied (aggregate credit-value), rather than merely the number of credits achieved. This approach is particularly useful when a student or delegate studies a mixture of courses of different credit-values.

For those delegates choosing the accumulative route, it is advisable that at least one or two credits be attempted each year. This will ensure that the required 180 Credit-Hours and 360 Credit-Hours, for the Postgraduate Certificate and Postgraduate Diploma, respectively, are achieved, within the designated period. These Credit-Values, awards and their accumulation are exemplified below.

Examples of Postgraduate Course Credits: Their Value, Award Prefix & Suffix – Based on 5-Day Multiples		
Credit Value	Credit Hours	Award Title Prefix (& Suffix)
Single-Credit	30-54	Diploma - Postgraduate
Double-Credit	60-84	Diploma – Postgraduate (Double-Credit)
Triple-Credit	90-114	Diploma – Postgraduate (Triple-Credit)
Quad-Credit	120-144	Diploma – Postgraduate (Quad-Credit)
5-Credit	150-174	Diploma – Postgraduate (5-Credit)
6-Credit	180-204	Postgraduate Certificate
7-Credit	210-234	Postgraduate Certificate (+ 1 Credit)
8-Credit	240-264	Postgraduate Certificate (+2 Credits)

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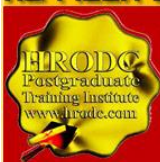
Examples of Postgraduate Course Credits: Their Value, Award Prefix & Suffix – Based on 5-Day Multiples		
Credit Value	Credit Hours	Award Title Prefix (& Suffix)
9-Credit	270-294	Postgraduate Certificate (+3 Credits)
10-Credit	300-324	Postgraduate Certificate (+ 4 Credits)
11-Credit	330-354	Postgraduate Certificate (+5 Credits)
12-Credit	360	Postgraduate Diploma
360 Credit-Hours = Postgraduate Diploma		
12 X 5-Day Courses = 360 Credit-Hours = Postgraduate Diploma		
10 X 6-Day Courses = 360 Credit-Hours = Postgraduate Diploma		

Exemplification of Accumulated Postgraduate Certificate and Postgraduate Diploma Award Titles

All Specialist Postgraduate Certificate and Postgraduate Diploma Programmes have their predetermined Award Titles. Where delegates do not follow a Specialism, for accumulation to a Postgraduate Diploma, they will normally be Awarded a General Award, without any Specialist Award Title. However, a Specialist Award will be given, where a delegate studies at least seventy percent (70%) of his or her courses in a specialist grouping. These are exemplified below:

- 1. Postgraduate Diploma in Accounting and Finance;**
- 2. Postgraduate Certificate in Accounting and Finance;**
- 3. Postgraduate Certificate in Aviation Management;**
- 4. Postgraduate Diploma in Aviation Management;**
- 5. Postgraduate Certificate in Industrial Health and Safety Management, Incorporating Oil and Gas Safety;**
- 6. Postgraduate Diploma in Industrial Health and Safety Management, Incorporating Oil and Gas Safety;**
- 7. Postgraduate Certificate in Business Communication;**
- 8. Postgraduate Diploma in Business Communication;**

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9. **Postgraduate Certificate in Corporate Governance;**
10. **Postgraduate Diploma in Corporate Governance;**
11. **Postgraduate Certificate in Costing and Budgeting;**
12. **Postgraduate Diploma in Costing and Budgeting;**
13. **Postgraduate Certificate in Client or Customer Relations;**
14. **Postgraduate Diploma in Client or Customer Relations;**
15. **Postgraduate Certificate in Engineering and Technical Skills;**
16. **Postgraduate Diploma in Engineering and Technical Skills;**
17. **Postgraduate Certificate in Events Management;**
18. **Postgraduate Diploma in Events Management;**
19. **Postgraduate Certificate in Health and Safety Management;**
20. **Postgraduate Diploma in Health and Safety Management;**
21. **Postgraduate Certificate in Health Care Management;**
22. **Postgraduate Diploma in Health Care Management;**
23. **Postgraduate Certificate in Human Resource Development;**
24. **Postgraduate Diploma in Human Resource Development;**
25. **Postgraduate Certificate in Human Resource Management;**
26. **Postgraduate Diploma in Human Resource Management;**
27. **Postgraduate Certificate in Information and Communications Technology (ICT);**
28. **Postgraduate Diploma in Information and Communications Technology (ICT);**
29. **Postgraduate Certificate in Leadership Skills;**
30. **Postgraduate Diploma in Leadership Skills;**
31. **Postgraduate Certificate in Law – International and National;**
32. **Postgraduate Diploma in Law – International and National;**
33. **Postgraduate Certificate in Logistics and Supply Chain Management;**
34. **Postgraduate Diploma in Logistics and Supply Chain Management;**
35. **Postgraduate Certificate in Management Skills;**
36. **Postgraduate Diploma in Management Skills;**


37. Postgraduate Certificate in Maritime Studies;
38. Postgraduate Diploma in Maritime Studies;
39. Postgraduate Certificate in Oil and Gas Operation;
40. Postgraduate Diploma in Oil and Gas Operation;
41. Postgraduate Certificate in Oil and Gas Accounting;
42. Postgraduate Diploma in Oil and Gas Accounting;
43. Postgraduate Certificate in Politics and Economic Development;
44. Postgraduate Diploma in Politics and Economic Development;
45. Postgraduate Certificate in Procurement Management;
46. Postgraduate Diploma in Procurement Management;
47. Postgraduate Certificate in Project Management;
48. Postgraduate Diploma in Project Management;
49. Postgraduate Certificate in Public Administration;
50. Postgraduate Diploma in Public Administration;
51. Postgraduate Certificate in Quality Management;
52. Postgraduate Diploma in Quality Management;
53. Postgraduate Certificate in Real Estate Management;
54. Postgraduate Diploma in Real Estate Management;
55. Postgraduate Certificate in Research Methods;
56. Postgraduate Diploma in Research Methods;
57. Postgraduate Certificate in Risk Management;
58. Postgraduate Diploma in Risk Management;
59. Postgraduate Certificate in Sales and Marketing;
60. Postgraduate Diploma in Sales and Marketing;
61. Postgraduate Certificate in Travel, Tourism and International Relations;
62. Postgraduate Diploma in Travel, Tourism and International Relations.

The actual courses studied will be detailed in a student or delegate's Transcript.

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The submission of our application form or otherwise registration by of the submission of a course booking form or e-mail booking request is an attestation of the candidate's subscription to our Policy Terms and Conditions, which are legally binding.

Prof. Dr. Ronald B. Crawford
Director
HRODC Postgraduate Training Institute