HRODC Postgraduate Training Institute

A Postgraduate-Only Institution

#212

Vibration Analysis and Non-Destructive Testing (NDT), Non-Destructive Evaluation (NDE), Petroleum – Oil and Gas – Pipelines Inspection, Bridges Inspection, Oil Gas Storage Tanks Testing, Rail NDE & NDT Inspection Testing, Acoustic Emission Testing (AE), Visual and Optical Testing

Postgraduate Short Course

Leading To:

DIPLOMA - POSTGRADUATE IN

Vibration Analysis and Non-Destructive Testing – NDT Quad Credit, 120 Credit-Hours

Accumulating to A

Postgraduate Certificate, With 60 Additional Credit-Hours, or A

Postgraduate Diploma, With 240 Additional Credit-Hours

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.

HRODC POSTGRADUATE TRAINING INSTITUTE
A Postgraduate – Only Institution

Websites:
https://www.hrodc.com/
https://www.hrodclondon
postgraduateshortcourses.com/
Email:
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Wolverhampton
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West Midlands, UK
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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/.

Course 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;
- 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 Course is Designed For:

- ✓ Those Responsible For Collecting Vibration Readings
- ✓ Those Desirous Of Vibration Reading Analysis
- ✓ Reliability Engineers
- ✓ **Product Data Management** (**PDM** Program Managers),
- ✓ Maintenance Staff Desirous Of Learning Condition Monitoring Generally
- ✓ Maintenance Staff Desirous Of Learning Vibration Analysis, Specifically
- ✓ Maintenance Supervisors
- ✓ Rotating Machinery Engineers
- ✓ Predictive Maintenance Coordinators
- ✓ Reliability Engineers
- ✓ Advanced Mechanics And Technicians
- ✓ Maintenance Supervisors
- ✓ Rotating Mechanics
- ✓ Machinery Engineers,
- ✓ Predictive Maintenance
- ✓ Technicians And Coordinators
- ✓ Reliability Engineers
- ✓ Plant Personnel Needing A Heightened Vibration Analysis Exposure
- ✓ Vibration Monitoring Assistants
- ✓ Vibration Analysts
- ✓ Plant Personnel Desirous of Acquiring Fundamental Knowledge of Analytical Methodologies
- ✓ Engineers
- ✓ Managers
- ✓ Supervisors
- ✓ Quality Manager
- ✓ Condition Monitoring Technicians
- ✓ Engineering Technicians; and
- ✓ Any non-technical (NDT) person responsible for NDT Technicians or ordering NDT

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techniques to maintain plan & equipment.

Classroom-Based Duration and Cost:	
Classroom-Based Duration:	20 Days
Classroom-Based Cost:	£20,000.00 Per Delegate
Online (Video-Enhanced) Duration and Cost	
Online Duration:	40 Days – 3 Hours Per Day
Online Cost:	£13,400.00 Per Delegate

Classroom-Based Course and 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**.

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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.**

Course Programme for Vibration Analysis and Non Destructive Testing (NDT), Non – Destructive Evaluation (NDE), Petroleum – Oil and Gas – Pipelines Inspection, Bridges Inspection, Oil Gas Storage Tanks Testing, Rail NDE and NDT inspection Testing Acoustic Emission Testing (AE), Visual and Optical Testing Course

Leading to Diploma – Postgraduate – in Vibration Analysis and Non – Destructive Testing – NDT (Quad Credit) and 120 Credit-Hours, Accumulating to a Postgraduate Certificate, with 90 Additional Credit-Hours, or a Postgraduate Diploma, with 240 Additional Credit-Hours

Course Contents, Concepts and Issues

Vibration Analysis (Fundamentals)

- Introduction to vibration
- Defining Vibration Analysis
- Typical Vibration Instruments.
- Motion - R.M.S. Technique
- Vibration Amplitude Measurement
- Peak Vibration
- Peak to Peak Vibration Measurement
- Displacement, velocity and acceleration

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- Units and unit conversion
- Spectrum analysis
- **FFT spectrum** Analyzer Technology
- Frequency Vibration
- Natural Frequency
- **Generated frequency**
- Resonant **frequency**
- Basic forcing frequency calculations

Fundamental Vibration Analysis Concepts and Issues

- Defining Mass and its units of measurement
- Use of vibration in evaluating machinery condition
- The concept of velocity
- The concept of frequency
- Exploring time waveform phase
- Discrete Fourier Transform (DFT)
- Fast Fourier Transformation (FFT) Techniques
- Exploiting Displacement
- Defining Speed
- Deducing Acceleration
- Detecting High Vibration
- Sensor Variations
- Analogue Instrumentation - Shortcomings
- Digital Technology - Advantages
- Vibration alarms
- Spectral band alarms

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Effecting an Enhanced Maintenance Programme

- Basic fault identification
- Vibratory fault characteristics and patterns
- Overall level measurements
- Mechanical **analysis**
- **Harmonic measurements**
- **Harmonic** distortion measurement
- Alarm limits, trending and exception reports
- Preventive Maintenance
- Predictive Maintenance
- **Reliability-centered Maintenance Programmed** (**RCM)**
- Fault diagnosis - Common electric motor faults
- Fault diagnosis - Common pump, fan and compressor faults
- Fault diagnosis - Rolling element bearing wear
- Fault diagnosis - Imbalance,
- Fault diagnosis - misalignment,
- Fault diagnosis - looseness,
- Fault diagnosis - eccentricity,
- Fault diagnosis - resonance
- Fault diagnosis - bearings Defects
- Fault diagnosis - gears Defects,
- Fault diagnosis - belts Defects
- Common belt drive and gearbox faults
- Electric Motors Defects
- Detection Of Electrical Problem Within Induction Motors

Instrumentation and Condition Monitoring

- Rotating Equipment Types
- Rotating Equipment Applications
- Rolling Element Bearings
- Journal Bearings
- Equipment Failure Modes
- Condition Monitoring Technologies
- Condition Monitoring Technologies - Vibration
- Condition Monitoring Technologies - Oil
- Condition Monitoring Technologies - Emission
- Condition Monitoring Technologies - Electric motor testing
- Condition Monitoring Technologies - Wear particle
- Condition Monitoring Technologies - Infrared
- Condition Monitoring Technologies - Acoustic

Data Acquisition Techniques

- Instrumentation
- Transducers and transducer mounting
- Measurement point naming conventions
- Routes surveys
- Loading and unloading the route
- Data collection
- Following a route
- Repeatable data collection
- Test procedures
- Observations: best utilizing your time in the field
- Recognizing bad data

Fundamentals of Machinery Vibration

- Key Concepts – Mass,
- The concept of Stiffness
- Mechanical Resonance
- Conceptualizing Damping
- Un-damped Free Vibration
- Damped Free Vibration
- Damped Force Vibration
- Lateral Vibration Characteristics
- Rigid - Body Vibrations
- Flexible Shaft Vibrations
- Mode Shapes and Critical Speeds of General Motor Bearing Systems

Deconstructing Bearings

- ***Journal and Thrust Bearings***
  - Types of Fluid Film Bearings
  - Selection of Bearing Type
  - Selection of Bearing Dimensions
  - Self-acting Thrust Bearings
  - Design Data for Tilting-Pad Thrust Bearings
  - Calculated Thrust Bearing Stiffness & Damping

- ***Ball Bearings***
  - Bearing Design Factors
  - Fatigue Life
  - Bearing Lubrication
  - Dynamics of Ball Bearings

- ***Rotor Bearing System Dynamics***
  - Spring and Damping Coefficient
  - Rotor Response Analysis
  - Rotor Dynamics For a Typical Machine
- ***Rotor response to Various Forces***
  - Type of Forces
  - Response to Unbalance
  - Response to Other Forces
- ***Rotor Bearing System Instability***
  - Dynamic Instability in Rigid-Body Systems
  - Complicating Factors
  - Control of Rotor Instability

Bearings and Vibration, and Rotor and Shaft Balancing

- ***Bearings Vibration Analysis***
  - Analytical methods for calculating vibration amplitudes
  - Troubleshooting analysis
  - Diagnostic procedures
  - Machinery faults and vibration frequencies
  - Vibration at running speed
  - Shaft surface defects and proximity probe readings
  - Vibration amplitude jump phenomenon
  - Beating of two adjacent frequencies
  - Harmonics
  - Sub-synchronous vibrations
  - Modulation
  - Vibration of ball and roller bearings

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Rotor and Shaft Balancing

- Balancing of Rotors and Shafts
- Single Plane Balancing
- Balancing in a Commercial Balance Machine
- In place Rotor and Shaft Balancing

Vibration Data Analysis, Interpretation and Problem Resolution

- Acquiring data to define the problem
- Long-term history of machine
- Field measurement data acquisition
- Field measurement data assessment
- Field measurement data interpretation
- Torsional Vibration Modeling
- Sources of Torsional Excitation
- Transient Response
- Damping
- Interpretation of Analysis

Forcing Frequencies, Sonar, Acoustic and Seismic

- Using units of orders instead of Hz or CPM.
- Calculating forcing frequencies
- Identifying shaft speed
- Blade and vane passing frequencies,
- Bearing frequencies,
- Gear mesh frequencies
- Gear and belt driven machines (multiple shafts with different turning speeds)
- Parametrically Excited Surface Waves
- Normal Form Symmetries
- Linear measurement Instruments

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- Seismic or acoustic emission
- Acoustic measurement Instrument
- 3D Seismic Surveys
- 4D Seismic Mapping

Non-Destructive Testing (NDT)

Non-Destructive Testing (NDT)

- Defining Non-Destructive Testing (NDT)
- Importance and Applications of Non-Destructive Testing
- Non-Destructive Testing Techniques
- Advantages of Non-Destructive Testing
- The Concept of Flaws
- Steps in Non-Destructive Testing
- Uses of NDT Techniques

Principles of Ultrasonic Testing

- Understanding the Frequency of Ultrasonic Waves
- Generation of Ultrasonic Waves
- Piezo-electric Materials for Ultrasonic Transducers
- Kinds of Ultrasonic Transducers
- Acoustic Impedance and the Need for Coupling Medium
- Reflection, Refraction and Scattering of Ultrasonic Beans
- Ultrasonic Attenuation
- Working of Ultrasonic Flaw Detectors
- Industrial Applications
- Pulse-echo and Through Transmission Testing
- Scanner Assemblies for Transmission and Pulse-echo Techniques
- Types of Scan
- Shear Wave Applications
- Typical Indications
- Test Blocks and Evaluating Flaw Size

- Resonance Technique
- Ultrasonics and Thickness Measurement
- Applications of Ultrasonics in Medical Science
- Determining Grain Size Using Ultrasonics

EDDY Current Testing

- Electrical Properties of Carbon Fibre Reinforced Plastics
- Principle of Eddy-current Testing
- Application of Eddy-current testing
- Eddy-current Path
- Eddy-current Coils
- Eddy-effect
- Recent Trends in Eddy-current Testing
- High Frequency Eddy-current Test
- Electrical Analogue of Eddy-current Test
- Theoretical Analysis of Eddy-current Circuit
- Fibre Volume Fraction Measurement by Eddy-current Technique
- Determination of Lay-up Order in Cross-plied CFRP Laminates

Magnetic Particle Flaw Detection

- Principle of Magnetic Flaw Detection
- Types and Methods of Magnetisation
- Magnetic Particles
- Dry and Wet Methods of Magnetic Particle Inspection
- Use of Fluorescent Coated Magnetic Particles
- Industrial Applications
- Working of a Few Commercially Available Magnetic Crack Detectors
- Flaw Detection in Rods and Pipes
- Flaw Detection in a Short Workpiece
- Precautions
- Limitations
- Residual Magnetism

- Need for Demagnetisation
- Relevant and Non-relevant Indications
- Physical Properties Determination
- Research Techniques using Magnetic Particle Method

Liquid Penetrant Inspection

- Background
- Oil and Chalk-Dust Method
- Inspection Technique
- Commercially Available Dye-penetrant Inspection Kits
- Industrial Applications
- Precautions and Limitations
- Test Blocks
- Fluorescent Penetrant Testing
- Detection of Through Leaks
- Typical Indications Associated with Liquid Penetrant Testing and their Interpretations

X-Radiography

- Properties and Production of X-rays
- Working Principle of X-Radiography
- Methods for Detecting Modulated Intensity of X-Rays Beam
- Applications of X-Radiographic Technique
- Safety Aspects Related to X-Radiographic Testing

Acoustic Emission Testing and Acousto-Ultrasonic Testing

- Need for Detecting Equipment
- Historical Background
- Basic Principles of Acoustic Emission Testing Technique
- Empirical Relationships Associated with Acoustic Emission Technique
- Acoustic Remission Response from Ductile and Brittle Materials
- Applications of Acoustic Emission Technique

- Acoustic Emission Equipment
- Acousto-Ultrasonic Technique

Other Non-Destructive Testing Methods

- Visual inspection and Optical Techniques
- Pressure and Leak testing
- Resistance Strain Gauge
- Brittle Coatings
- Spot Test
- Spark Test
- Spark Testing
- Sulphur Printing
- Thermal Methods
- Electrical Methods
- Dynamic Testing
- Spectrochemical Analysis
- Thickness Measurement using Beta Gauge and Beta Backscatter Gauge

NDT in Use

- Rail Inspection
- Aircraft Inspection
- Liberty Bell Inspection
- Bridge Inspection
- Storage Tank Inspection
- Wire Rope Inspection
- Pipeline Inspection

NDE/NDT Technologies

- Visual and Optical Testing (VT)
- Radiography (RT)
- Magnetic Particle Testing (MT)
- Ultrasonic Testing (UT)

- Penetrant Testing (PT)
- Electromagnetic Testing (ET)
- Leak Testing (LT)
- Acoustic Emission Testing (AE)

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 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.

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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.

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.

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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.

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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.

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;

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- 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

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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)
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		

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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;**
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;**

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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;**

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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 n 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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