

# **HIRODC Postgraduate Training Institute**



**A Postgraduate - Only Institution**



**#057**

**Satellite Network Design and Security**

**Postgraduate Short Course**

**Leading To:**

**DIPLOMA - POSTGRADUATE IN**

**Satellite Network Design and Security  
Double-Credit, 60 Credit-Hours**

**Accumulating to A**

**Postgraduate Certificate, With 120 Additional Credit-Hours, or A**

**Postgraduate Diploma, With 300 Additional  
Credit-Hours**

**HIRODC 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.hrodc.london/postgraduateshortcourses.com/>

**Email:**  
[institute@hrodc.com](mailto:institute@hrodc.com)  
[london@hrodc.com](mailto:london@hrodc.com)

**HQ**  
122A Bhylls Lane  
Wolverhampton  
WV3 8DZ  
West Midlands, UK

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+44 1902 763 607  
+44 7736 147 507

**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);

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- 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

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## For Whom This Course is Designed

### This Course is Designed For:

- Antenna Engineers;
- Communication Engineers;
- Communication Technicians;
- Computer Engineers;
- Computer Technicians;
- Control Systems Engineers;
- Cyber Security Engineers;
- Cyber Security Technicians;
- Digital Communication Engineers;
- Fibre optic Engineers;
- GPS Experts;
- Information Communications and Technologies (ICT) Engineers
- Information Security Engineers;
- Information Security Specialists;
- Information Systems Engineers;
- Network Aesthetic Engineers;
- Network Aesthetic Technicians;
- Network Security Engineers;
- Network Security Technicians;
- Radio-Frequency Engineers;
- Radio-Frequency Technicians;
- Satellite Communication Architects;
- Satellite Communication Designers;
- Satellite Engineers;
- Satellite Installers;
- Satellite Network Designers;
- Satellite Network Engineers;
- Satellite Network Technicians;
- Telemetry Engineers;

Satellite Network Design and Security Course, Leading to Diploma Postgraduate - in Satellite Network Design and Security (Double Credit), and 60 Credit-Hours, Accumulating to A Postgraduate Certificate, with 150 additional Credit-Hours, a Postgraduate Diploma, with -300 Additional Credit-Hours

- Telemetry Technician;
- Transmission Network Engineers;
- VHF Communication Engineers;
- VSAT Systems Engineers;
- All others desirous of enhancing their knowledge and expertise in Satellite Network Design and Security.

<b>Classroom-Based Duration and Cost:</b>	
<b>Classroom-Based Duration:</b>	<b>10 Days</b>
<b>Classroom-Based Cost:</b>	<b>£10,000.00 Per Delegate</b>
<b>Online (Video-Enhanced) Duration and Cost</b>	
<b>Online Duration:</b>	<b>20 Days – 3 Hours Per Day</b>
<b>Online Cost:</b>	<b>£6,700.00 Per Delegate</b>

**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;**

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- **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.**

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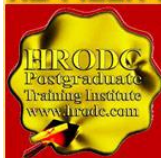
**Course Contents, Concepts and Issues**

**Part 1: Satellites Overview**

- Satellites: A Working Definition;
- Role and Importance of a Satellite;
- Low Earth Orbit (LEO);
- Medium Earth Orbit (MEO);
- Geostationary Earth Orbit (GEO);
- Seven Subsystems of a Satellite:

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- The Propulsion Subsystem;
  - The Power Subsystem;
  - The Communications Subsystem;
  - The Structures Subsystem;
  - The Thermal Control Subsystem;
  - The Attitude Control Subsystem;
  - Operators at the Ground Station.
- Satellite Anatomy:
- Power System;
  - Antenna System;
  - Command and Control System;
  - Station Keeping;
  - Transponders.
- Satellite Frequency Bands:
- C-Band;
  - Ku-Band;
  - Ka-Band.
- Important Satellites;
- Uses of Satellites.

## Part 2: Satellite Communications (1)

- Concept of Satellite Communications;
- Satellite Communications Systems;
- Experimental;
- Applications Technology Satellite (ATS) of NASA;
  - Joint Canadian – US Communications Technology Satellite (CTS or Hermes);
  - Ariane Passenger Payload Experiment (APPLE) Satellite of India;
  - Symphonie Satellite (France & Germany);
  - SIRIO (Italy);
  - LES (US Military);
  - OTS (ESA);
  - JBS, CS (Japan).

➤ International:

- International Telecommunications Satellite(INTELSAT) Organisation;
- New Skies Satellites;
- PanAmSaT;
- INTERSPUTNIK;
- INMARSAT;
- COSPAS-SARSAT.

➤ Domestic:

- United States of America (Wester, SBS, etc.);
- India (INSAT);
- Brazil (BrazilSat);
- Mexico (Morelos);
- China (Chinasat);
- Japan (CS, BS).

➤ Regional:

- EUTELSAT;
- ARABSAT;
- AUSSAT;
- PALAPA.

➤ Military:

- DSCS (US AF);
- SKYNET (UK);
- NATO;
- FLTSATCOM (US NAVY)
- MILSTAR.

➤ Navigational and Radio Determination;

➤ Personal Communications System:

- Iridium (66 Satellites);
- Globalstar (48 Satellites);
- Orbcomm (35 Satellites);
- New ICO (10 Satellites).

➤ Broadband Satellite System:

- Teledesic;



- SkyBridge;
- Spaceway.

## Part 3: Satellite Communications (2)

- Orbits for Communication Satellite;
- Non-Geostationary Orbit (NGSO);
- Orbital Plane:
  - Polar Orbit;
  - Equatorial Orbit;
  - Inclined Orbit.
- Orbital Height:
  - Low Earth Orbit (LEO);
  - Medium Earth Orbit (MEO)/Intermediate Circular Orbit (ICO);
  - Highly Elliptical Orbit (HEO);
  - Geosynchronous Earth Orbit (GEO).
- Geo Stationary Orbit (GSO).
- Geosynchronous Communication Satellite;
- Salient Features of Geosynchronous Satellite;
  - Wide Coverage;
  - Stationary Position;
  - Multiple Access;
  - Suitability for Transcontinental Telecommunications, Broadcasting, Mobile and Thin Route Communications;
  - Frequency Reuse Capability;
  - Very Low Doppler Shift;
  - Reliability;
  - Cost Effectiveness.
  - Problems of Geosynchronous Satellite Communication.

## Part 4: Elements of Satellite Communications System (1)

- Two Major Elements of Satellite Communications (SATCOM) System:
  - Space Segment;
  - Communication Satellite;
  - Satellite Bus Subsystems:
    - Mechanical Structure;
    - Attitude and Orbit Control System;
    - Propulsion System;
    - Electrical Power System;
    - Tracking Telemetry and Command System;
    - Thermal Control System.
  - Satellite Payloads:
    - Communication Transponders;
    - Communication Antennas.
  - Means for Launching Satellite – Launch Vehicle:
    - Expendable;
    - Reusable.
  - Satellite Control Centre for Station Keeping of the Satellite;
    - Ground Segment;
  - Earth Stations:
    - Transmit Equipment;
    - Receive Equipment;
    - Antenna System.
  - Rear Ward Communication Links;
  - User Terminals and Interfaces;
  - Network Control Centre.
  - Major Earth Station and Earth Terminal Complexes.

## Part 5: Elements of Satellite Communications System (2)

- Satellite Communications (SATCOM) Services;
- One Way Link:
  - Broadcast Satellite Service (Radio, TV, Data Broadcasting);
  - Data Collection Service (Hydro Meteorological Data Collection);
  - Space Operations Service (Tracking, Telemetry, Command);
  - Safety Services (Search & Rescue, Disaster Warning);
  - Earth Exploration Satellite Service (Remote Sensing);
  - Meteorological Satellite Service (Meteorological Data Dissemination);
  - Radio Determination Satellite Service (Position Location);
  - Reporting Service (Fleet Monitoring);
  - Standard Frequency and Time Signal Satellite Service;
  - Space Research Service.
- Two Way Link:
  - Fixed Satellite Service (Telephone, Telefax, Fax, High Bit Rate Data);
  - Mobile Satellite Service (Land Mobile, Maritime, Aero-Mobile, Personal Communications);
  - Inter Satellite Service;
  - Satellite News Gathering (Transportable and Portable);
  - Very Small Aperture Terminal (VSAT):
  - Mesh and Star.
  - General Dynamics (SATCOM) Technologies.

## Part 6: Very Small Aperture Terminal (VSAT) and TV-Receive Only (TVRO)


- Very Small Aperture Terminal (VSAT):
  - Very Small Aperture Terminal (VSAT): A Working Definition;
  - Very Small Aperture Terminal (VSAT) Networks Explained;
  - Benefits of Very Small Aperture Terminal (VSAT) Networks;
  - Very Small Aperture Terminal (VSAT) As Satellite;
  - Very Small Aperture Terminal (VSAT) Transmitters;
  - Very Small Aperture Terminal (VSAT) Receivers;

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- TV-Receive Only (TVRO):
  - TV-Receive Only (TVRO) on Ships;
  - TV-Receive Only (TVRO) Current Uses;
  - TV-Receive Only (TVRO) Satellite Bands.

## Part 7: The Antenna System

- Electromagnetic Waves;
- Types of Antennas:
- Parabolic Antenna Design and Types;
- Distinguished by Shape:
  - Paraboloidal or Dish;
  - Cylindrical;
- Shaped-Beam Antennas.
- Classified by the type Feed:
  - Axial or Front Feed;
  - Off-axis or offset Feed;
  - Cassegrain;
  - Gregorian.
- Electrical Characteristics of an Antenna:
  - Gain;
  - Radiation Pattern;
  - Impedance;
  - Bandwidth;
  - Resonant Frequency; and
  - Polarization.
- Gain and Half Power Beamwidth;
- Equivalent Isotropic Radiated Power (EIRP) and “The Figure of Merit” G/T;
- Antenna Pattern;
- Taper;

- Coverage Area;
- Shaped Beams;
- Broadcasting Use of the Frequency Spectrum;
- Satellite Footprint:
  - Uplink;
  - Downlink.

## Part 8: Radio Frequency (RF) System

- The Electromagnetic Spectrum;
- Frequency Bands:
  - Extremely Low Frequency (ELF);
  - Voice Frequency (VF);
  - Very Low Frequency (VLF);
  - Low Frequency (LF);
  - Medium Frequency (MF);
  - High Frequency (HF);
  - Very High Frequency (VHF);
  - Ultra High Frequency (UHF);
  - Super High Frequency (SHF);
  - Extremely High Frequency (EHF).
- Space Communication Bands:
  - Very High Frequency (VHF);
  - Ultra High Frequency (UHF);
  - Super High Frequency (SHF);
  - Extremely High Frequency (EHF);
  - L-Band;
  - S-Band;
  - X-Band;
  - Ku-Band;
  - K/Ka-Bands;

- V-Band.
- Radio Frequency (RF) Measurement Methodology:
  - Spectral Analysis;
  - Vector Analysis;
  - Network Analysis.
- Radio Frequency (RF) Wireless Technology:
  - Bluetooth;
  - Zigbee;
  - WiFi;
  - GPS.
- Use of Radio Frequencies;
- Radio Frequency (RF) and Microwave Waveguide Basics.

## Part 9: Network Security (1)


- Network Security Definition;
- Network Security Concepts;
- Security Management;
- Types of Attacks;
- Passive - Network:
  - Wiretapping;
  - Port Scanner;
  - Idle Scan.
- Active:
  - Denial of Service Attack;
  - DNS Spoofing;
  - Man in the Middle;
  - ARP Poisoning;
  - VLAN Hopping;
  - Smurf Attack;
  - Buffer Overflow;
  - Heap Overflow;
  - Format String Attack;
  - SQL Injection;
  - Phishing;
  - Cross-site Scripting;
  - CSRF;
  - Cyber-Attack.
- Other Related Security Areas:
  - Internet Security;
  - Cyberwarfare;
  - Information Security;
  - Mobile Security.
- Security Methods:
  - Authentication;

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- Access Control;
- Encryption;
- Certificates;
- Firewalls;
- Signatures;
- Public Key Infrastructure;
- Code Authentication;
- Physical Security;
- Password Policies.

## Part 10: Network Security (2)

- IPsec (Internet Protocol Security);
- L2TP (Layer 2 Tunneling Protocol);
- SSL (Secure Sockets Layer);
- WEP (Wired Equivalent Privacy);
- WPA (Wi-Fi Protected Access);
- WPA2 (Wi-Fi Protected Access 2);
- 802.11x;
- Authentication Protocols:
  - CHAP (Challenge Handshake Authentication Protocol);
  - MS-CHAP (Microsoft Challenge Handshake Authentication Protocol);
  - PAP (Password Authentication Protocol);
  - RADIUS (Remote Authentication Dial-In User Service);
  - Kerberos and EAP (Extensible Authentication Protocol);
  - Smart Cards.
- Remote Access Protocols and Services:
  - RAS (Remote Access Service);
  - PPP (Point-to-Point Protocol);
  - SLIP (Serial Line Internet Protocol);
  - PPPoE (Point-to-Point Protocol over Ethernet);
  - PPTP (Point-to-Point Tunneling Protocol);
  - VPN (Virtual Private Network);



- RDP (Remote Desktop Protocol).
- Security Feature and Implementation in Embedded Devices:
  - Secure Boot;
  - Secure Code Updates;
  - Data Security;
  - Authentication;
  - Secure Communication;
  - Protection Against Cyber Attacks;
  - Intrusion Detection and Security Monitoring;
  - Embedded Security Management;
  - Device Tampering Detection.

## Part 11: Network Operation and Other Issues

- Network Operations Centre (NOC):
  - Network Operations Centre (NOC) Functions;
  - Computer Environments;
  - Telecommunication Environments;
  - Satellite Network Environments.
- Network Management System (NMS);
- Virtual Network Operator (VNO).
- Network and Networking;
- Types of Networks:
  - Local Area Networks (LANs);
  - Wide Area Networks (WAN);
  - Metropolitan Area Network (MAN);
  - Storage Area Networks (SANs);
  - Content Networks (CNs);
  - Intranet;
  - Extranet;
  - Internet;
  - Virtual Private Network (VPN).
- Fibre Networking:

- Optical Fibre.
- Backhaul Technologies:
  - Free Space Optics (FSO);
  - Point to Point Microwave Radio Relay Transmission;
  - Point to Multipoint Microwave-access Technologies (LMDS, Wi-Fi, WiMax, etc.)
  - DSL (ADSL and SHDSL);
  - PDH and SDH/SONET Interfaces;
  - Ethernet.
- Microwaves.

## 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.


### **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.

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

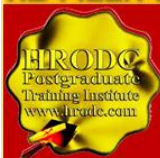
- The tutor meets the group and presents the course, via Video, in a similar way to its classroom-based counterpart;
- All participants are able to see, and interact with, each other, and with the tutor;
- They watch and discuss the various video cases and demonstrations that form an integral part of 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 1<sup>st</sup> of each month, with the cut-off date being the 20<sup>th</sup> 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.

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**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.

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

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<b>Examples of Postgraduate Course Credits: Their Value, Award Prefix &amp; Suffix – Based on 5-Day Multiples</b>		
<b>Credit Value</b>	<b>Credit Hours</b>	<b>Award Title Prefix (&amp; Suffix)</b>
<b>8-Credit</b>	<b>240-264</b>	<b>Postgraduate Certificate (+2 Credits)</b>
<b>9-Credit</b>	<b>270-294</b>	<b>Postgraduate Certificate (+3 Credits)</b>
<b>10-Credit</b>	<b>300-324</b>	<b>Postgraduate Certificate (+ 4 Credits)</b>
<b>11-Credit</b>	<b>330-354</b>	<b>Postgraduate Certificate (+5 Credits)</b>
<b>12-Credit</b>	<b>360</b>	<b>Postgraduate Diploma</b>
<b>360 Credit-Hours = Postgraduate Diploma</b>		
<b>12 X 5-Day Courses = 360 Credit-Hours = Postgraduate Diploma</b>		
<b>10 X 6-Day Courses = 360 Credit-Hours = Postgraduate Diploma</b>		

**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;**

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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;**
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;**

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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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## **Service Contract, incorporating Terms and Conditions**

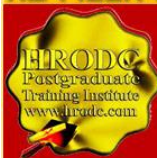
[Click, or copy and paste the URL, below, into your Web Browser, to view our Service Contract, incorporating Terms and Conditions.](https://www.hrodc.com/Service_Contract_Terms_and_Conditions_Service_Details_Delivery_Point_Period_Cancellations_Extinuating_Circumstances_Payment_Protocol_Location.htm)

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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.

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