



#177.M2

Advanced Software Engineering

Postgraduate Short Course

Leading To:

DIPLOMA - POSTGRADUATE IN

Advanced Software Engineering Quad Credit, 120 Credit-Hours

Accumulating to A

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

Postgraduate Diploma, With 240 Additional Credit-Hours

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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





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

- Applications Engineer;
- Computer and Information Systems Manager;
- Database Administrator;
- Help Desk Technician;
- Information Technology Director;
- Information Technology Manager;
- Management Information Systems Director;
- Programmer;
- Programmer Analyst;
- Security Specialist;
- Senior Applications Engineer;
- Senior Database Administrator;
- Senior Network Engineer;
- Senior Programmer Analyst;
- Senior Security Specialist;
- Senior Software Engineer;
- Senior Support Specialist;
- Senior System Administrator;
- Senior System Analyst;
- Senior System Architect;
- Senior System Designer;
- Senior Systems Analyst;
- Senior Systems Software Engineer;
- Senior Web Administrator
- Senior Web Developer;
- Software Engineer;
- Software Quality Assurance Analyst;
- Support Specialist;
- System Administrator;

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- System Analyst;
- System Architect;
- System Designer;
- Systems Analyst;
- Systems Software Engineer;
- Technical Specialist;
- Telecommunications Specialist;
- Web Administrator;
- Web Developer;
- > All Others Interested In Software Engineering.

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		

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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.

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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Advanced Software Engineering Course

Leading to Diploma – Postgraduate – in Advanced Software Engineering (Quad Credit) and 120 Credit-Hours, Accumulating to a Postgraduate Certificate, with 60 Additional Credit-Hours, or a Postgraduate Diploma, with 240 Additional Credit-Hours

Course Objectives

By the conclusion of the specified learning and development activities, delegates will be able

- to:
- Define software engineering;
- Explain why different application types requires specialised software engineering techniques to support their design and improvement;
- Estimate software cost;
- Identify the kinds of software products and give examples for each;
- > indicate the Importance of software engineering in the software industry;
- > Enumerate the fundamental activities that are common to all software processes;
- > Determine the threegeneral issues that affect most software;
- Identify the software engineering methods and techniques that are suitable for each your system and company;
- Name the different types of applications necessary to determine which software engineering methods and techniques are suitable;
- Explain the software engineering fundamentals which apply to all types of software system;
- > Explain how the universal use of the web has changed software systems;
- Identify the ways web-based systems are engineered;
- Understand some ethical and professional issues which are important for software engineers;
- Know the provisions of the Software Engineering Code of Ethics and Professional Practice;



- Understand the concept of software processes and software process models;
- Know about the fundamental process activities of software requirements engineering, software development, testing and evolution;
- Understand why process should be organised to cope with changes in the software requirements and design;
- Find out how the Rational Unified Process integrate good software engineering practice to create adaptable software processes;
- Give the rationale for agile software development methods;
- > Differentiate plan driven and agile development;
- Explain the extreme programming release cycle and identify the practices in extreme programming;
- Establish how agile project management ensures that software is delivered on time and within the planned budget for the project;
- Be aware of the issues and problems of escalating agile development methods to the development of large software systems;
- Understand the concept of user and system requirements and explain why there requirements should be written in different ways;
- > Compare functional and nonfunctional software requirements;
- > Explain how requirements may be organised in a software requirements documents;
- Understand the principal requirements engineering activities of elicitation, analysis and validation, and the relationships between these activities;
- Establish the necessity of requirements management and how it supports other requirements engineering activities;
- > Know how graphical models can be used to represent software systems;
- > Establish the importance of modeling the context of a system that is being developed;
- Developed a sequence diagram showing the interactions involved in a particular situation;
- > Determine how structural models of software display the organisation of a system;
- > Find out what is shown in a behavioral model;
- Identify the factors which should be taken into account when deciding whether or not to Introduce the model-driven engineering approach to software development;
- Indicate the importance of architectural design software;



- Analyse the decisions that have to be made about the system architecture during the architectural design process;
- Identify the architectural views which should be taken into consideration when designing and documenting a system's architecture;
- Be familiarized with the idea of architectural patterns, well-tries ways of organising system architectures, which can be reused in system designs;
- Know the architectural patterns that are often used in different types of application system, including transaction processing systems and language processing systems;
- > Identify the most important activities in a general, object-oriented design process;
- Determine some of the different models that may be used to document an objectoriented design;
- Understand the idea of design patterns and how these are a way of reusing design knowledge and experience;
- Know the key issues that have to be considered when implementing software, including software reuse and open-source development;
- Identify the levels of granularity under which testing are carried out during development;
- Enumerate the steps involvedtest-driven development process;
- Give the important distinctions between release testing and system testing;
- Explain why user testing is essential even when comprehensive system and release testing have been carried out;
- Identify the factors which determine the software evolution process;
- > Be familiar with Lehman's law concerning system change;
- Find out how legacy system can be assessed to decide whether they should be scrapped, maintained, reengineered, or replaced
- Indicate the characteristics of all complex systems;
- Identify the activities included in systems engineering;
- Find out what is done during the Systems procurement stage;
- Ascertain how all of the components of a system are developed or acquired and integrated to create final system through system development;
- > Determine the key benefits of having System operators;
- Find out why dependability and security are usually more important than the functional characteristics of a software system;



- Demonstrate a heightened understanding about the four principal dimensions of dependability, to wit: availability; reliability; safety and security;
- > Be familiarise of the terminology related to the topic of security and dependability;
- > Determine the requirements in achieving secure and dependable software;
- Use risk-driven approach to identify and analyse safety, reliability and security requirements;
- Use fault trees to analyse risks and derive safety requirements;
- > Determine how metrics are used to specify measurable reliability requirements;
- Enumerate the different types of security requirements that may be required in a complex system;
- Give the advantages and disadvantages of using formal, mathematical specifications of a system;
- Discover how system dependability can be achieved by using redundant and diverse components;
- Identify the contribution of dependable software processes to the development of dependable software;
- > Use different architectural styles in implementing software redundancy and diversity;
- > Adopt a good programming practice for a dependable systems engineering;
- Determine the interrelated role of software engineers and senior management in risk management;
- Ascertain how life-cycle risk assessment and operational risk assessment are used to understand security issues that affect a system design;
- Evaluate the notion of system survivability and know the importance of survivability analysis in a complex software systems;
- Use the different approaches to static analysis in the verification of the critical software systems;
- Understand the basics of reliability and security testing and the inherent problems of testing critical systems;
- Explain why ensuring system reliability is not a guarantee of a system safety;
- Indicate the importance of process assurance in software that has to be certified by a regulator;
- Analyse some safety and dependability cases;
- Identify the hey factors that should be considered when planning reuse;



- Ascertain how frameworks support design reuse;
- Enumerate some types of specialisation of a Software product line which may be developed;
- Know the benefits of Commercial-off-the-shelf (COTS) over customised software development;
- Cite some essential characteristics of a component as used in CBSE;
- Specify the principal activities in the CBSE process for reuse and the CBSE process with reuse;
- Enumerate some difficulties and problems which arise during the process of Component composition;
- Determine the key issues which have to be considered when designing and implementing distributed software systems;
- > Describe the layered architecture of the client–server system
- Identify the commonly used patterns for distributed systems architectures and knw the type of system for which each architecture is most applicable;
- Understand the concept of Software as a service, providing web-based access to remotely deployed application systems;
- > Give the important distinctions between services and software components;
- Define service engineering;
- Identify the basis of the development of software using services and know why many companies now are converting their enterprise applications into service-oriented systems;
- Decide which system capabilities are to be implemented in software and in which hardware;
- Explain the three real-time architectural patterns that are commonly used;
- Conduct timing analysis involved in the embedded real-time software development process;
- Explain why are general-purpose operating systems not suitable as real-time system platforms;
- Know why The separation of concerns is a good guiding principle for software development;
- Determine how an aspect-oriented approach may be used for requirements engineering, software design and programming;



- Suggest how you could use aspects to simplify the debugging of programs;
- > Outline the process of risk management;
- Explain why is it important for the software project managers to understand the technical issues that influence the work of software development;
- Know the required composition of software engineering project groups/teams;
- Identify the factors which should be taken into consideration when calculating the price of a software product;
- Determine the basis of Plan-driven development and the principal arguments against it;
- Estimate the calendar time needed to complete each tasks, the effort required, who will work on the tasks that have been identified, the resources needed to complete each task, the time required on specialised hardware and the travel budget;
- Discuss how agile planning is conducted;
- Make initial estimates on the basis of a high-level user requirements definition and master the techniques of estimation;
- > Explain how the software quality is affected by the software development process used;
- Indicate the importance of standards in quality management process and know how standards are used in quality assurance;
- Use reviews and inspectionsas mechanisms for software quality assurance;
- Realise how measurement can help in assessing some software quality attributes and the current limitations of software measurement;
- Identify the processes and procedures involved in software change management;
- Specify the essential functionality that must be provided by a version management system and establish the relationships between version management and system building;
- Define system building;
- Give the reason why major releases are very important to the software vendors;
- Explain the rationale for software process improvement as a means of improving both product quality and the efficiency and effectiveness of software processes;
- Determine the factors to be considered in introducing process improvements;
- Give an example to illustrate the notion that process measurement can be used to assess whether or not the efficiency of a process has been improve;
- Understand what is going on in a process during a process analysis;



- > Enumerate the key stages in the Process change process; and
- Determine the circumstances under which one can use the stage representation of CMMI.

Course Contents, Concepts and Issues

M2 – Part 1: Software Engineering-Software Process, Agile Software Development, Requirements Engineering, System Modelling, Architectural Design, Design and Implementation, Software Testing, and Software Evolution (1)

- Introducing Software Engineering;
- Software Cost;
- Software Products;
- Importance of Software Engineering;
- Software Process Activities;
- General Issues That Affect Most Software;
- Software Engineering Diversity;
- Application Types;
- Software Engineering Fundamentals;
- Software Engineering and The Web;
- Web Software Engineering;
- Software Engineering Ethics;
- Issues of Professional Responsibility;
- > Software Process Models.

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M2 – Part 2: Software Engineering - Software Process, Agile Software Development, Requirements Engineering, System Modelling, Architectural Design, Design and Implementation, Software Testing, and Software Evolution (2)

- Process Activities;
- > The Rational Unified Process;
- Agile Methods;
- > Plan-Driven and Agile Development;
- Extreme Programming;
- Agile Project Management;
- Scaling Agile Methods;
- Functional and Non-Functional Requirements;
- > The Software Requirements Document;
- Requirements Specification;
- Requirements Engineering Processes;
- Requirements Elicitation and Analysis;
- Requirements Validation;
- Requirements Management;
- Context Models;
- Interaction Models;
- Structural Models;
- Behavioral Models;
- Model-Driven Engineering;
- Architectural Design Decisions
- Architectural Views;
- Architectural Patterns;
- > Application Architectures.





M2 – Part 3: Software Engineering - Software Process, Agile Software Development, Requirements Engineering, System Modelling, Architectural Design, Design and Implementation, Software Testing, and Software Evolution (3)

- Object-Oriented Design Using the UML;
- Design Patterns;
- Implementation Issues;
- > Open Source Development;
- Development Testing;
- Test-Driven Development;
- Release Testing;
- User Testing;
- Evolution Processes;
- Program Evolution Dynamics;
- Software Maintenance;
- > Legacy System Management.

M2 – Part 4: Dependability and Security -Sociotechnical Systems, Dependability and Security, Dependability Engineering, Security Engineering, and Dependability and Security Assurance (1)

- Complex Systems;
- Systems Engineering;
- Systems Procurement;
- System Development;
- System Operation;
- Dependability Properties;
- Availability and Reliability;
- Safety;

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- Security;
- Risk-Driven Specification;
- Safety Specification;
- Security Specification.

M2 – Part 5: Dependability and Security - Sociotechnical Systems, Dependability and Security, Dependability Engineering, Security Engineering, and Dependability and Security Assurance (2)

- Software Reliability Specification;
- Redundancy and Diversity;
- Dependable Processes;
- Dependable Systems Architectures;
- > Dependable Programming;
- Security Engineering and Security Management;
- Security Risk Assessment;
- Design for Security;
- Static Analysis;
- Reliability Testing;
- Security Testing;
- Process Assurance;
- > Safety and Dependability Cases.

M2 – Part 6: Advanced Software Engineering -Software Reuse, Component-based Software Engineering, Distributed Software Engineering, Service Oriented Architecture, Embedded Software, and Aspect-Oriented Software Engineering (1)

- The Reuse Landscape;
- Application Frameworks;
- Software Product Lines;

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- COTS Product Reuse;
- Components and Component Models;
- CBSE Processes;
- Component Composition;
- Distributed Systems Issues;
- Client–Server Computing.

M2 – Part 7: Advanced Software Engineering - Software Reuse, Component-based Software Engineering, Distributed Software Engineering, Service Oriented Architecture, Embedded Software, and Aspect-Oriented Software Engineering (2)

- > Architectural Patterns for Distributed Systems;
- Software as a Service;
- > Services as Reusable Components;
- Service Engineering;
- Software Development with Services;
- Embedded Systems Design;
- Architectural Patterns;
- Timing Analysis;
- Real-Time Operating Systems;
- > Aspects, Join Points and Point Cuts;
- > Software Engineering with Aspects.

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M5 Part 8: Software Management -Project Management, Project Planning, Quality Management, Configuration Management and Process Improvement (1)

- Risk Management;
- Managing People;
- Teamwork;
- Software Pricing;
- Plan-Driven Development;
- Project Scheduling;
- > Agile Planning;
- Estimation Techniques;
- Software Quality;
- Software Standards;
- > Reviews and Inspections.

M5 Part 9: Software Management - Project Management, Project Planning, Quality Management, Configuration Management and Process Improvement (2)

- Software Measurement and Metrics;
- Change Management;
- Version Management;
- System Building;
- Release Management;
- The Process Improvement Process
- Process Measurement
- Process Analysis
- Process Change
- > The CMMI Process Improvement Framework



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, Advanced Software Engineering Course - Page 19 of 27



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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.

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:

- 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;
- 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



Advanced Software Engineering Course, Leading to Diploma Postgraduate - in Advanced Software Engineering (Quad Credit), and 120 Credit-Hours, Accumulating to A Postgraduate Certificate, with 60 Additional Credit-Hours, a Postgraduate Diploma, with -240 Additional Credit-Hours 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;
- 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	Award Title Prefix (& Suffix)		
	Hours			
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)		

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Examples of Postgraduate Course Credits:			
Their Value, Award Prefix & Suffix – Based on 5-Day Multiples			
Credit Value	Credit	Award Title Prefix (& Suffix)	
	Hours		
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			

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;
- 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 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;

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Advanced Software Engineering Course, Leading to Diploma Postgraduate - in Advanced Software Engineering (Quad Credit), and 120 Credit-Hours, Accumulating to A Postgraduate Certificate, with 60 Additional Credit-Hours, a Postgraduate Diploma, with -240 Additional Credit-Hours
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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Prof. Dr. Ronald B. Crawford Director

HRODC Postgraduate Training Institute

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