

HRODC Postgraduate Training Institute



A Postgraduate - Only Institution



#014

**Comprehensive Automotive Electrical,
Electronic and Mechanical Diagnostic,
Maintenance and Repair**

Programme

Leading To:

POSTGRADUATE DIPLOMA IN

**Automotive Electrical, Electronic and
Mechanical Diagnostic, Maintenance and
Repair**

- Page 1 of 59

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

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Websites:

<https://www.hrodc.com/>

<https://www.hrodc.london>

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HRODC Postgraduate Training Institute, A Postgraduate-Only Institution

Our UK Government's Verification and Registration

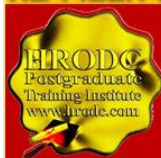
Our Institute is Verified by, and Registered with, the United Kingdom (UK) Register of Learning Providers (UKRLP), of the Department for Education (DfE). Its UK Provider Reference Number (UKPRN) is: 10019585 and might be located at: <https://www.ukrlp.co.uk/>.

Programme Coordinator:

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

- Doctor of Philosophy {(PhD) {University College London (UCL) - University of London}};
- MEd Management (University of Bath);
- Postgraduate (Advanced) Diploma Science Teacher Ed. (University of Bristol);
- Postgraduate Certificate in Information Systems (University of West London, formerly Thames Valley University);
- Diploma in Doctoral Research Supervision, (University of Wolverhampton);
- Teaching Certificate;

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- Fellow of the Institute of Management Specialists;
- Human Resources Specialist, of the Institute of Management Specialists;
- Member of the Asian Academy of Management (MAAM);
- Member of the International Society of Gesture Studies (MISGS);
- Member of the Standing Council for Organisational Symbolism (MSCOS);
- Member of ResearchGate;
- Executive Member of Academy of Management (AOM). There, his contribution incorporates the judging of competitions, review of journal articles, and guiding the development of conference papers. He also contributes to the Disciplines of:
 - Human Resources;
 - Organization and Management Theory;
 - Organization Development and Change;
 - Research Methods;
 - Conflict Management;
 - Organizational Behavior;
 - Management Consulting;
 - Gender & Diversity in Organizations; and
 - Critical Management Studies.

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

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

His responsibilities in these roles included:

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

For Whom This Course is Designed

This Programme is Designed For:

- Mechanics;
- Automotive Engineers;
- Automotive Technicians;
- Electrical Engineers;
- Drivers;
- All others desirous of enhancing their knowledge and expertise in Automotive Electrical, Electronic and Mechanical Diagnostic, Maintenance and Repair.

Classroom-Based Duration and Cost:

Classroom-Based Duration: 12 Weeks (5 Days per Week)

Classroom-Based Cost: £45,000.00 Per Student

Online (Video-Enhanced) Duration and Cost

Online Duration: 20 Weeks – 3 Hours Per Day, 6 Days Per Week

Online Cost: £30,150.00 Per Student

Classroom-Based Programme Cost includes:

- Free Continuous snacks throughout the Event Days;
- Free Hot Lunch on Event Days;
- Free City Tour;
- Free Stationery;
- Free On-site Internet Access;
- Postgraduate Diploma/ Diploma – Postgraduate –or
- Certificate of Attendance and Participation – if unsuccessful on resit.

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

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

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

Delivery Locations:

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

Course Programme for Comprehensive Automotive Electrical, Electronic and Mechanical Diagnostic, Maintenance and Repair				
Leading to Postgraduate Diploma in Automotive Electrical, Electronic and Mechanical Diagnostic, Maintenance and Repair				
Module Number	Module Title	Duration	Page #	Credit Value
014.M1	Automotive Industry: Technical and Contextual Explorations Part 1	2 Weeks (10 Days)	6	Double
014.M2	Automotive Industry: Technical and Contextual Explorations Part 2	2 Weeks (10 Days)	16	Double
014.M3	Advanced Mechanical Engineering: Automotive Fault Diagnosis and Repair	4 Weeks (20 Days)	26	Quad
014.M4	Automotive Electrical Wiring	2 Weeks (10 Days)	41	Double
014.M5	Automotive Repair and Maintenance	2 Weeks (10 Days)	44	Double

Course Programme for Comprehensive Automotive Electrical, Electronic and Mechanical Diagnostic, Maintenance and Repair, Programme

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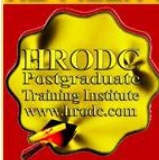
Programme Contents, Concepts and Issues

**Module 1 (Double Credit)
Automotive Industry: Technical and Contextual Explorations Part 1**

M1. Part 1: Engine Building

- Concept of Engine:
 - Internal Combustion Engine;
 - Building an Engine on Paper;
 - Fuel Uses;

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Comprehensive Automotive Electrical, Electronic and Mechanical Diagnostic, Maintenance and Repair Programme, Leading to Postgraduate Diploma in Automotive Electrical, Electronic and Mechanical Diagnostic, Maintenance and Repair

- Basic Force of an Engine;
 - Trapping the Explosion;
 - Simple Engine;
 - Parts of Engine;
 - Fastening the Parts;
 - Lengthen the Piston;
 - Getting Fuel into the Engine;
 - Removable Cylinder Head;
 - Fuel Intake and Exhaust Passages;
 - Valves.
- Four-Stroke Cycle:
- Vacuum;
 - Vacuum Pump;
 - Then Intake Stroke;
 - The Compression Stroke;
 - Power Stroke;
 - Exhaust Stroke;
 - Completed Cycle;
 - Cycle Repeated.
- Opening and Closing Valves:
- Camshaft;
 - Valve Lifter;
 - Camshaft Speed;
 - Turning The Camshaft;
 - Timing The Valves.
- The Flywheel;
- Basic Engine Completed.

M1. Part 2: Design, Construction, Application of Engine Components

- The Engine Block;
- Cylinders;
- Pistons:
 - Piston Materials;
 - Piston Expansion Problems;
 - Partial Skirt Piston;
 - Piston Temperature;
 - Piston Construction;
 - Piston Head Shape;
 - Piston Rings;
 - Types of Rings;
 - Piston Pins.
- Connecting Rods:
 - Rod Construction;
 - Rod Bearing.
- Crankshaft:
 - Main Bearings;
 - Crankshaft Throws;
 - Crank Vibration.
- Vibration Damper:
 - Balance Shafts;
 - Drilled, Ground and Polished.
- Timing Gears;
- Sprocket;
- Flywheel;
- Camshaft;
- Valves:
 - Valve Seats;
 - Valve Guides;
 - Valve Springs.

- Mechanical Valve Litters;
- Hydraulic Valve Litters:
 - Reducing Valve Wear;
 - Valve Timing.
- Cylinder Head;
- Oil Pan;
- Timing Gear Cover;
- Gaskets;
- Sealants;
- Seals;
- Other Parts.

M1. Part 3: Classifying Engine and Identifying the Parts

- Cycle Classification;
- Valve Location Classifications:
 - L-Head, T-Head and F-Head Designs;
 - I-Head;
 - Overhead Valve Adjustment;
 - Valve-To-Piston Clearance;
 - Detonation and Preignition.
- Combustion Chamber Design:
 - Ricardo Combustion Chamber;
 - Hemispherical Combustion Chamber;
 - Wedge Shape Combustion Chamber.
- Cylinder Classification:
 - Inline Engine;
 - V-Type Engine;
 - Horizontal-Opposed Engines.
- Firing Order;
- Cooling Classification;
- Fuel Classification:

- Two-Stroke and Four-Stroke Cycle Diesel Engines;
 - Rotary Engines;
 - Miller-Cycle Engines;
 - Natural Gas Engines.
- Experimental Engines;
 - Engine Mounting;
 - Identification and Classification.

M1. Part 4: Safety Lab Procedures: Avoiding Accidents

- Kinds of Accidents;
- How Accidents Happen;
- Effects of Accidents;
- Reducing the Possibility of Accidents;
- Dressing Safely for Work;
- Keeping a Neat Shop;
- Identifying Unsafe Conditions;
- Waste Chemical Disposal;
- Proper Work Procedure;
- Doing the Job Right.

M1. Part 5: Automotive Tools

- Tool Material;
- Tool Construction;
- Tool Handling And Storage;
- Types of Tools;
- Measuring Tools.

M1. Part 6: Engine Tests and Measurements

- Horsepower:
 - Horsepower Formula;
 - Potential Horsepower;
 - Thermal Efficiency;
 - Mechanical Efficiency;
 - Practical Efficiency;
 - Indicated Horsepower;
 - Brake Horsepower;
 - Gross and Net Horsepower Ratings;
 - Frictional Horsepower;
 - Torque;
 - Torque and Brake Horsepower, Distinctions.
- Volumetric Efficiency;
- Engine Size, Displacement:
 - Cylinder Bore;
 - Piston Stroke.
- Compression Ratio.

M1. Part 7: Electrical System Fundamentals

- Basic Electricity:
 - The Electron Theory;
 - Conventional Theory;
 - Matter;
 - Atoms;
 - Electrical Current;
 - Current Flow;
 - Voltage;
 - Electrical Resistance;

- Test Meters;
 - Conductors (Materials);
 - Insulators;
 - Electrical Circuits;
 - Series-Parallel Circuit;
 - Vehicle Chassis;
 - Ohm's Law;
 - Magnetism;
 - Magnet.
- Basic Automotive Electronics:
- Diodes;
 - Transistors.

M1. Part 8: Ignition System

- Necessity of High Voltage;
- Primary Circuit:
- Battery;
 - Ignition Switch;
 - Resistors;
 - Ignition Coil;
 - Methods of Current Interruption;
 - Distributorless Ignition System;
 - Primary Circuit Complete.
- Secondary Circuit:
- Spark Plug Construction;
 - Spark Plug Heat Range;
 - Resistor Spark Plugs;
 - Distributor Cap;
 - Rotor;
 - Spark Plug Wires.
- Ignition Timing And Advance:

- Setting Basic Timing;
- Timing Advance Mechanism.

M1. Part 9: Fuel Injection Systems

- Providing the Correct Air-Fuel Mixture;
- Fuel Injection:
 - Direct and Indirect Injection;
 - Mechanical and Electronic Injection;
 - Computer-Controlled Electronic Fuel Injection System.
- Pulse Fuel Injection;
- Types of Pulse Fuel Injection Systems:
 - Throttle Body Injection;
 - Multiport Fuel Injection.
- Pulse Fuel Injection System Components:
 - Air Induction System;
 - Fuel Delivery System;
 - Engine Control Computer;
 - Electronic Sensors.
- Continuous Pulse Fuel Injection Systems:
 - Fuel Flow Control;
 - Complete Air-Fuel Control Unit.
- Diesel Fuel Injection:
 - Diesel Fuel;
 - Overall Diesel Fuel System;
 - Injector Pump Types;
 - Distributor Type Injection Pump;
 - Other Pump Features;
 - Diesel Injector Types;
 - Glow Plugs and Intake Air Heaters.
- Superchargers and Turbochargers.

M1. Part 10: Fuel Supply and Carburetors

- Fuel Supply System:
 - Fuel Tank;
 - Gasoline Pickup Tube;
 - How Gasoline Leaves the Tank;
 - Electric Fuel Pump;
 - Fuel Filter;
 - Fuel Lines;
 - Vapor Lock Eliminations.
- Carburetors:
 - Building a Carburetor;
 - Basic Carburetor is Complete;
 - Correcting the Remaining Faults;
 - Carburetor Circuits;
 - Intake Manifold Design.
- Air Cleaners;
- Carburetor Classification.

M1. Part 11: Cooling Systems

- The Need for a Cooling System;
- Methods of Cooling:
 - Liquid-Cooled Engines;
 - First Job Complete.

M1. Part 12: Lubrication Systems

- The Need For Lubrication Systems:
 - Friction;
 - Friction Reduction;
 - Bearing Construction and Friction.
- Engine Oil:
 - Engine Oil Jobs;
 - Refining Engine Oil;
 - Oil Viscosity;
 - Engine Oil Service Classification;
 - Oil Change Intervals.
- Engine Lubrication Systems:
 - How Oil Works;
 - Types of Lubrication Systems;
 - Components of the Pressure-Splash System;
 - Pressure Relief Valve;
 - Oil Galleries and Lines;
 - Oil Enters Bearing;
 - Hydraulic Valve Lifters.
- Oil Filtration;
- Crankcase Ventilation;
- Oil Seals;
- Oil Pressure Indicators;
- Dipstick;
- Cooling the Oil.

M1. Part 13: Exhaust Systems

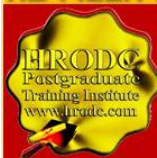
- Purpose of the Exhaust System;
- Exhaust System Design;
- Exhaust System Components:
 - Exhaust Manifolds;
 - Exhaust Pipes;
 - Catalytic Converters;
 - Mufflers;
 - Resonators;
 - Tailpipes;
 - Hangers;
 - Heat Shields.
- Exhaust System Materials;
- Sealing the Exhaust System:
 - Exhaust Pipe-To-Manifold Connections;
 - Pipe-To-Pipe Connections;
 - Other Connections.

M1. Part 14: Emission Systems

- The Need for Emission Control;
- Emission Control Systems;
- Engine Modifications And Controls:
 - Engine Modifications;
 - Fuel System Controls;
 - Spark Timing Controls;
 - Exhaust Gas Recirculation (EGR).
- External Cleaning Systems:
 - Air Injection System;
 - Pulse Air Injection;
 - Catalytic Converter;

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- Multiple Converters;
- Diesel Catalytic Converters.
- Fuel Vapor Controls:
 - Positive Crankcase Ventilation;
 - Evaporation Control Systems (ECSs).
- Computer Control Emission Systems;
- Emission Systems Caution.

Module 2 (Double Credit) Automotive Industry: Technical and Contextual Explorations Part 2

M2. Part 1: Computer Systems

- Computers on Modern Vehicles:
 - Electronic Control Unit (ECU);
 - Computer Control Operation;
 - Input Sensors;
 - Output Devices
 - On-Board Diagnostic Systems.
- Static Electricity:
 - Electromagnetic Interference.

M2. Part 2: Charging and Starting Systems

- Battery:
 - Battery Cells;
 - Battery Construction;
 - Battery Chemical Action;
 - Parasitic Battery Loads;
 - Identifying Battery Terminals;
 - Dry-Charged Battery.
- Charging System:

- Alternator;
- Alternator Control.
- Starter System:
 - Starter Motor Principles;
 - Starter Motor Construction;
 - Starter Drive System;
 - Starter Solenoid;
 - Starter Actuating Switches.

M2. Part 3: Chassis Electrical (1)

- Chassis Wiring:
 - Wire Sizes;
 - Wiring Harness;
 - Manu Circuits;
 - Color Coding;
 - Terminal Blocks;
 - Junction Blocks.
- Circuit Protection Devices;
- Vehicle Lights and Light Switches:
 - Headlights;
 - Stoplight and Switches;
 - Turn Signals and Switches;
 - Backup Lights and Switches;
 - Dashboard Lights;
 - Convenience Lights;
- Chassis Mounted Solenoids and Relays:
 - Motor Control Relays;
 - Trunk Release Solenoids;
 - Power Door Lock Solenoid .
- Horns and Horn Relays;
- Rear Window and Mirror Defroster:

- Chassis Mounted Motors;
- Windshield Wiper Motors and Controls;
- Power Window, Tail Gate, Sliding Door and Sunroof Motors;
- Convertible Top Motors and Switches;
- Power Antenna Motors and Switches.

M2. Part 4: Chassis Electrical (2)

- Electric Gauges;
- Cruise Control:
 - Vehicle Speed Sensor;
 - Operator Controls and Control Module;
 - Throttle Actuator.
- Air Bag Systems:
 - Diagnostic Control Module;
 - Impact Sensors;
 - Coil Assembly and Inflator Module;
 - Air Bag Operation;
 - Side Air Bags.
- Holding Members:
 - Bands;
 - Multiple Disc Clutch;
 - Overrunning Clutches.
- Hydraulic Control System:
 - Fluid Pump;
 - Control Valves;
 - Simple Hydraulic System;
 - Transmission And Transaxle Shifting;
 - Complete Control Circuit;
 - Transmission Case.
- Transmission Lubrication:
 - Fluid Filter.

- Fluid Cooling.

M2. Part 5: Axles and Drives

- Rear Wheel Drive Shafts:
 - Drive Shaft Flexibility;
 - Universal Joint;
 - Slip Yoke;
 - How The Wheels Drive in the Vehicle;
 - Hotchkiss Drive;
 - Universal Joint and Fluctuating Shaft Speed.
- Constant Velocity (CV) Axles:
 - CV Axle Shafts;
 - Types of CV Joints;
 - CV Joint Boots.
- Rear-Wheel Drive Axle Assemblies;
- Rear-Wheel Drive Axle Components:
 - Axle Housing;
 - Solid Axles;
 - Independent Axles;
 - Types of Axles;
 - Differential Construction;
 - Ring and Pinion;
 - Differential Operation;
 - Differential Carrier and Bearings;
 - Limited-Slip Differential;
 - Ring And Pinion Adjustments;
 - Gear Ratio;
 - Axle Lubrication;
 - Transaxle Differential;
 - Assembly.

- Four-Wheel Drive Front Drive Axles:
 - Front Axle Steering Provision.

M2. Part 6: Brakes (1)

- Hydraulic Basics:
 - Air;
 - Liquids;
 - Hydraulic Principles in Vehicle Brake Systems;
 - Brake Fluid.
- Master Cylinder:
 - Master Cylinder Construction;
 - Dual Brake System;
 - Quick Take-Up Master Cylinder;
 - Master Cylinder Operation.
- Brake System Hydraulic Control Valves:
 - Proportioning Valve;
 - Height Sensing Proportioning Valve;
 - Disc Brake Metering Valve;
 - Pressure Differential Switch;
 - Combination Valve;
 - Brake Lines;
 - Brake Hoses.
- Disc Brake Calipers:
 - Caliper Operation.
- Wheel Cylinders:
 - Wheel Cylinder Construction;
 - Wheel Cylinder Operation;
 - Hydraulic System Failure;
 - Air-Free Hydraulic System;
 - Hydraulic System Vapor Lock.
- Brake Friction Members:

- Coefficient of Friction;
- Friction Linings;
- Brake Fade.
- Disc Brake Assembly:
 - Brake Pad Construction;
 - Braking Ratio;
 - Backing Plate.

M2. Part 7: Brakes (2)

- Drum Brake Assembly:
 - Brake Shoe Assembly;
 - Brake Drum;
 - Drum Brake Operation;
 - Drum Brake Arrangement;
 - Self-Adjusting Brakes;
 - Parking Brakes.
- Power Brake Systems;
- Vacuum-Assisted Power Booster:
 - Vacuum Power Booster Construction;
 - Vacuum Power Booster Operation;
 - Other Vacuum Booster Types;
 - Vacuum Reservoir;
 - Booster Failure.
- Hydraulic Pressure-Operated Power Booster:
 - Hydraulic Power Booster Operation;
 - Hydraulic Accumulator.
- Anti-Lock Brake Systems (ABS):
 - Anti-Lock Brake System Components;
 - Anti-Lock Brake Operation.
- Traction Control Systems;
- Brake Lights.

M2. Part 8: Suspension Systems

- The Need For A Suspension System:
 - Spring Weight;
 - Unsprung Weight.
- Suspension System Components:
 - Vehicle Frames.
- Springs:
 - Leaf Springs;
 - Coil Springs.
- Shock Absorbers:
 - Shock Absorber Control Action;
 - Shock Absorber Construction;
 - Shock Absorber Operation.
- Air Shock Absorbers:
 - Control Arms And Struts;
 - Ball Joints;
 - Stabilizer Bars.
- Front Suspension Systems;
- Conventional Independent Front Suspension:
 - Coil Spring Front Suspension;
 - Torsion Bar Front Suspension;
 - Macpherson Strut Front Suspension;
 - Solid Axle Front Suspension.
- Rear Suspension Systems:
 - Solid Rear Axle Suspensions;
 - Independent Rear Suspensions.
- Suspension Lubrication;
- Automatic Level Control:
 - Automatic Level Control Operation;
 - Air Compressor;
 - Height Control Valve.

- Computerized Ride Control Systems.

M2. Part 9: Steering Systems

- Steering Systems:
 - Spindle And Steering Arm Assembly.
- Steering Linkage:
 - Parallelogram Linkage;
 - Parallelogram Component Arrangement;
 - Rack-And-Pinion Linkage.
- Steering Wheel, Steering Shaft And Steering Gear:
 - Steering Wheel;
 - Steering Shaft;
 - Steering Gear;
 - Manual Track-And-Pinion Steering Gear;
- Power Steering:
 - Road Feel;
 - Power Steering Components;
 - Self-Contained Power Steering Gear Components;
 - Inline Unit With Torsion Bar and Rotating Spool Valve;
 - Rack-and-Pinion Power Steering;
 - Power Steering Pumps;
 - Power Steering Hoses and Tubing;
 - Manual Operation Power Steering Systems;
 - Power Steering Fluids;
 - Electronic Steering Controls.

M2. Part 10: Wheels and Tires

- Wheels:
 - Steel Wheels;
 - Custom Wheels;
 - Wheel Rim Size;
 - Wheel Lug Bolts and Nuts.
- Wheel Hubs and Bearings:
 - Wheel Bearings;
 - Bearing Retaining Devices.
- Tires:
 - Tire Construction;
 - Tire Rating Information;
 - Tire Quality Grading;
 - Special Service Tires;
 - Correct Vehicle Tire;
 - Tire Valves;
 - Importance of Tire Pressure;
 - Tire Rotation;
 - Tire Runout and Balance;
 - High Speeds and Overloading Produce Heat and Excessive Water.

M2. Part 11: Wheel Alignment

- Purpose of Wheel Alignment;
- Wheel Alignment Angles:
 - Types of Wheel Alignment;
 - Alignment Measurement Values;
 - Caster;
 - Camber;
 - Steering Axis Inclination;

- Toe;
- Toe-Out on Turns
- Slip Angles.
- Steering Geometry:
 - Alignment Adjustments;
 - Thrust Angle;
 - Front Wheel Adjustments;
 - Rear Wheel Adjustments.
- Tire Wear Patterns and Alignment;
- Alignment Equipment:
 - Worn Parts Checking Before Alignment.
- Other Factors That Can Affect Alignment.

M2. Part 12: Air Conditioning and Heating (1)

- Purposes of Automotive Air Conditioning;
- Principles of Refrigeration:
 - Cooling;
 - Effects of Heat;
 - Transference of Heat;
 - Conduction;
 - Convection;
 - Radiation;
 - From Hot to Cold Heat Transfer;
 - States of Matter;
 - Latent Heat;
 - Pressure-Temperature Relationship;
 - Types of Refrigerant.
- How The Refrigeration System Works:
 - Types of Refrigeration Systems.

M2. Part 13: Air Conditioning and Heating (2)

- Major Components of the Air Conditioning System:
 - Compressor;
 - Basic Compressor Designs;
 - Pressure Relief Valve;
 - Compressor Magnetic Clutch;
 - Condenser;
 - Refrigerant Flow Restrictor;
 - Evaporator;
 - Blower Motor;
 - Lines and Hoses;
 - Receiver-Dehydrator;
 - Accumulator;
 - Evaporator Pressure Controls.
- Service Valves;
- Refrigerant Oil;
- Refrigerant Handling Precautions;
- Retrofitting;
- Heater Systems;
- Air Distribution and Control;
- Heater-Air Conditioning Control Systems.

Module 3 (Quad Credit) Advanced Mechanical Engineering: Automotive Fault Diagnosis and Repair

M3. Part 1: Overview

- Understanding Diagnosis;
- Work Safety Practices;
- Diagnostic Terminology;
- Report Writing.

M3. Part 2: Techniques in Diagnosing (1)

- Overview;
- Diagnostic Process:
 - The Six-Stage Process;
 - The Art of Diagnostics;
 - Diagnostic Concern;
 - Cause and Correction;
 - Root Cause Analysis.
- Making Diagnosis on Paper;
- Mechanical Diagnostic Techniques:
 - Checking;
 - Noise;
 - Vibration;
 - Harshness;
 - Noise Conditions;
 - Vibration Conditions;
 - Road Test;
 - Engine Noises;
 - Sources.

M3. Part 3: Techniques in Diagnosing (2)

- Electrical Diagnostic Techniques:
 - Checking;
 - Test Lights and Analogue Meters;
 - Procedure in Electrical Testing;
 - Volt Drop Testing;
 - Short Circuit Testing;
 - Load Tests;
 - Black Box Techniques;
 - Sensor to ECU Method;
 - Flight Recorder Tests
 - Faultfinding;
 - Colour Codes and terminal Numbers;
 - Back Probing Connectors.
- Fault Codes:
 - Fast and Slow;
 - Fault Code Examples;
 - Clearing.
- Systems:
 - Systems, Defined;
 - Vehicle Systems;
 - Open-loop Systems;
 - Closed-loop Systems;
 - Block Diagrams.
- Sources of Data:
 - Autodata;
 - Bosch ESItronic.

M3. Part 4: Automotive Tools and Equipment

- Basic Equipment:
 - Basic Hand Tools;
 - Test Equipment Accuracy;
 - Multimeters;
 - Logic Probe.
- Oscilloscopes:
 - Waveforms.
- Scanners:
 - On-board Diagnostic (OBD);
 - Serial Port Communications;
 - OBD2 Signal Protocols;
 - AutoTap OBD Scanner;
 - Bosch KTS Diagnostic Equipment;
 - Engine Analysers.
- Emission Testing:
 - Exhaust Gas Measurement;
 - Exhaust Analyser;
 - Emission Limits.
- Pressure Testing:
 - Automotive Pressure Oscilloscope Transducer.

M3. Part 5: Using Diagnosing Sensors, Actuators and Oscilloscope

- Sensors:
 - Essentials of Sensor and Sensor Diagnostics;
 - Inductive Sensors;
 - Variable Resistance;
 - How Wire Airflow Sensor;
 - Thermistors;
 - Hall Effect Sensors;

- Piezo Accelerometer;
 - Oxygen Sensors;
 - Pressure Sensors;
 - Variable Capacitance;
 - Optical Sensors;
 - Dynamic Position Sensors
 - Rain Sensor.
- Actuators:
- Testing Actuators;
 - Motorised and Solenoid Actuators;
 - Solenoid Actuators;
 - Thermal Actuators.
- Engine Waveforms:
- Primary Ignition;
 - Secondary Ignition;
 - Diesel Glow Plugs;
 - Alternator Waveform;
 - Relative Compression Petrol.
- Communication Networks:
- CAN;
 - LIN;
 - FlexRay.

M3. Part 6: Managing On-Board Diagnostics (OBD) (1)

- Evolution:
- Vehicle Emissions and Environmental Health;
 - The Development of the Emission and Control Legislation;
 - Vehicle Emission Control Strategies.
- Understanding On-board Diagnostics:
- OBD Scenario;
 - Origins of OBD;

- P-code Composition;
- European on-board Diagnostics and Global Adoption.
- Gasoline On-Board Diagnostic Monitors:
 - Legislative Drivers;
 - Component Monitoring;
 - Rationality Testing;
 - Circuit Testing;
 - Catalyst Monitor;
 - Evaporative System Monitor;
 - Fuel System Monitor;
 - Exhaust Gas Circulation Monitor;
 - Secondary Air Monitor;
 - Monitors and Readiness Fags;

M3. Part 7: Managing On-Board Diagnostics (OBD) (2)

- Mist Redetection:
 - Mist Remonitor;
 - Crank Speed Actuation;
 - Ionising Current Monitoring;
 - Cylinder Pressure Sensing;
 - Exhaust Pressure Analysis.
- OBD Summary:
 - OBD2;
 - EOBD;
 - Features and technology of Current Systems.
- Driving Cycles;
- Future Developments in Diagnostic Systems:
 - OBD3;
 - Diesel Engines;
 - Rate-Based Monitoring;
 - Model-Based Development.

M3. Part 8: Engine System (1)

- Overview;
- Engine Operation:
 - Four-Stroke Cycle
 - Cylinder Layouts;
 - Crankshaft Drives;
 - Valve Mechanisms;
 - Valve and Ignition Timing.
- Diagnosing Engine:
 - Systematic Testing;
 - Test Equipment;
 - Test Results;
 - Engine Fault Diagnosis.
- Fuel System:
 - Carburation.
- Diagnosing Fuel System:
 - Systematic Testing;
 - Test Equipment;
 - Test Results;
 - Fuel Fault Diagnosis.
- Engine Management;
- Ignition:
 - Essentials of Ignition;
 - Advance Angle;
 - Electronic Ignition;
 - Hall Effect Distributor;
 - Inductive Distributor;
 - Current-limiting and Closed-loop Dwell;

- Programmed Ignition;
- Distributorless Ignition;
- Direct Ignition;
- Spark plugs.

M3. Part 9: Engine System (2)

- Diagnosing Ignition System:
 - Testing Procedure;
 - Ignition Fault Diagnostic;
 - Ignition Components and Testing;
 - DIS Diagnostics;
 - Spark Plugs.
- Emissions:
 - Exhaust Gas Recirculation;
 - Catalytic Converters.
- Diagnosing Emission:
 - Testing Procedure;
 - Emission Fault Diagnostic;
- Fuel Injection:
 - Injection Systems;
 - Fuel Injection Components;
 - Fuel Mixture Calculation.
- Diagnosing Fuel Injection Systems:
 - Testing Procedure;
 - Fuel Injection Fault Diagnosis.
- Diesel Injection:
 - Electronic Control of Diesel Injection;
 - Common Rail Diesel Systems;
 - Diesel Exhaust Emissions;
 - Catalytic Converter Diesel;
 - Filters.

- Diagnosing Diesel Injection Systems:
 - Test Equipment;
 - Diesel Injection Fault Diagnosis;
 - Diesel Engine Smoke;
 - Glow Plug Circuit;
 - Diesel Systems.

M3. Part 10: Engine System (3)

- Engine Management:
 - Closed-loop Lambda Control;
 - Engine Management Operation;
 - Gasoline Direct Injection.
- Diagnosing Combined Ignition and Fuel Systems:
 - Testing Procedure;
 - Combined Ignition and Fuel Control Fault Diagnosis Table;
 - Fuel Pump Testing;
 - Injector Testing.
- Engine Management and Fault Finding Information:
 - Diagnosis Chart;
 - Circuit Diagrams;
 - Component Testing Data.
- Air Supply and Exhaust Systems:
 - Exhaust System;
 - Catalytic Converters;
 - Air Supply System.
- Diagnosing Exhaust and Air Supply:
 - Systematic Testing;
 - Test Results;
 - Exhaust and Air Supply Fault Diagnosis;
 - Exhaust Fault Diagnosis.
- Cooling:

- Air-cooled System;
- Water-cooled System;
- Sealed and Semi-Sealed Systems.

M3. Part 11: Engine System (4)

- Diagnosing Cooling:
 - Systematic Testing;
 - Test Equipment;
 - Test Results;
 - Cooling Fault Diagnosis.
- Lubrication:
 - Lubrication System;
 - Oil Filters;
 - Oil Pumps;
 - Crankcase Ventilation Engine Breather Systems.
- Diagnosing Lubrication:
 - Systematic Testing;
 - Test Equipment;
 - Test Results;
 - Lubrication Fault Diagnosis.
- Batteries:
 - Safety;
 - Lead-Acid Batteries;
 - Battery Rating.
- Diagnosing Batteries:
 - Servicing Batteries;
 - Maintenance-free;
 - Charging;
 - Battery Faults;
 - Testing Batteries.

M3. Part 12: Engine System (5)

- Starting:
 - Starter Circuit;
 - Inertia Starters;
 - Pre-engaged Starters;
 - Permanent Magnet Starters;
 - Keyless Starting System.
- Starting Diagnostics:
 - Circuit Testing Procedure;
 - Starting Fault Diagnosis.
- Charging:
 - Basic Principles;
 - Rectification of AC to DC;
 - Regulation of Output Voltage;
 - Charging Circuits.
- Charging Diagnostics:
 - Testing Procedure;
 - Charging Fault Diagnosis.

M3. Part 13: Automotive Chassis Systems (1)

- Brakes:
 - Principle of Hydraulic Braking;
 - Disc and Drum Brake Systems;
 - Brake Adjustments;
 - Servo-assisted Braking.
- Diagnosing Brakes Problems:
 - Systematic Testing;
 - Test Equipment;
 - Dial gauge;
 - Test Results;
 - Brakes fault Diagnosis;

- Brake Hydraulic Faults.
- Antilock Brakes:
 - General System Description;
 - ABS Components.
- Diagnosing Antilock Brakes Problems:
 - Systematic Testing Procedure;
 - Antilock Brakes Fault Diagnosis;
 - Bleeding Antilock Brakes.
- Traction Control:
 - Control Functions;
 - System Operation.
- Traction control:
 - Systematic Testing;
 - Traction Control Fault Diagnosis.

M3. Part 14: Automotive Chassis Systems (2)

- Steering and Tyres:
 - Construction of a Tubeless Radial Tyre;
 - Steering Box and Rack;
 - Power Assisted Steering;
 - Steering Characteristics;
 - Camber;
 - Castor;
 - Swivel Axis Inclination;
 - Tracking;
 - Scrub Radius.
- Steering and Tyres Diagnostics:
 - Systematic Testing;
 - Test Equipment;
 - Four-Wheel Alignment;
 - Test Results;

- Tyre Fault Diagnosis;
- Tyre Inflation Pressures;
- Steering Fault Diagnosis;
- Steering, Wheels and Tyres Fault Diagnosis.

M3. Part 15: Automotive Chassis Systems (3)

- Suspension:
 - Suspension System Layouts;
 - Front Axle Suspensions;
 - Rear Axle Suspensions;
 - Anti-Roll Bar;
 - Springs;
 - Dampers.
- Diagnosing Suspension:
 - Systematic Testing;
 - Test Equipment;
 - Test Results;
 - Suspension Fault Diagnosis.
- Active Suspension:
 - Active Suspension Operation;
 - Delphi MagneRide Case Study.
- Active Suspension Diagnostic:
 - Systematic Testing;
 - Back to the Black Box.

M3. Part 16: Working with Electrical Systems (1)

- Electronic Components and Circuits:
 - Components;
 - Integrated Circuits;
 - Digital Circuits;
 - Electronic Component Testing.

- Multiplexing:
 - Overview;
 - Controller Area Network;
 - CAN Data Signal;
 - Local Interconnect Network;
 - FlexRay.
- Multiflexing Diagnostics;
- Lightning:
 - External lights;
 - Lightning circuits;
 - Gas Discharge Lightning;
 - LED Lighting.
- Lighting Diagnostics:
 - Testing Procedure;
 - Lighting Fault Diagnostic;
 - Headlight Beam Setting.
- Auxiliaries:
 - Wiper Motors and Linkages;
 - Wiper Circuits;
 - Two-Motor Wiper System;
 - Headlight Wipers and Washers;
 - Indicators and Hazard Lights;
 - Brake Lights;
 - Electric Horns;
 - Engine Cooling and Fan Motors.

M3. Part 17: Working with Electrical Systems (2)

- Diagnosing Auxiliary:
 - In-Car Entertainment;
 - Security Systems;
 - Mobile Communications.

- Diagnosing ICE, Security and Communication:
 - Testing Procedure;
 - ICE, Security And Communication System Fault Diagnosis;
 - Interference Suppression.
- Body Electrical Systems:
 - Electric Seat Adjustment;
 - Electric Mirrors;
 - Electric Sunproof Operation;
 - Door Locking Circuit;
 - Electric Window Operation.
- Diagnosing Body Electrical:
 - Testing Procedure;
 - Body Electrical Systems Fault Diagnosis;
 - Circuit Systematic Testing.
- Instrumentation:
 - Gauges;
 - Digital Instrumentation;
 - Vehicle Condition Monitoring;
 - Trip Computer;
 - Displays.
- Instruments Diagnostics:
 - Testing Procedures;
 - Instrumentation Fault Diagnosis;
 - Black Box Technique.

M3. Part 18: Working with Electrical Systems (3)

- Heating, Ventilation and Air Conditioning (HVAC):
 - Ventilation and Heating;
 - Heating System - Watercooled Engine;
 - Heater Blower Motors;
 - Electronic Heating Control;

- Air Conditioning;
- Automatic Temperature Control;
- Seat Heating;
- Screen Heating.
- Diagnosing HVAC:
 - Testing Procedure;
 - Air Conditioning Fault Diagnosis;
 - Heating And Ventilation Fault Diagnosis;
 - Air Conditioning Receiver.
- Cruise Control:
 - System Description;
 - Components.
- Diagnosing Cruise Control:
 - Systematic Testing;
 - Cruise Control Fault Diagnosis.
- Airbags and Belt Tensioners:
 - Components And Circuits;
 - Seat Belt Tensioners.
- Diagnosing Airbags and Belt Tensioners:
 - Systematic Testing;
 - Airbags and Belt Tensioners Fault Diagnosis;
 - Deactivation And Activation Procedures.

M3. Part 19: Automatic and Manual Gear Transmission Systems

- Manual Transmission:
 - Clutch;
 - Manual Gearbox;
 - Driveshafts and Wheel Bearings;
 - Final Drive and Differential;
 - Four Wheel Drive Systems.
- Diagnosing Manual Transmission:

- Systematic Testing;
 - Test Equipment;
 - Test Results;
 - Manual Transmission Fault Diagnosis;
 - Manual Gearbox Fault Diagnosis;
 - Drive Shafts Fault Diagnosis;
 - Final Drive Fault Diagnosis.
- Automatic Transmission:
- Torque Converter Operation;
 - Epicyclic Gearbox Operation;
 - Constantly Variable Transmission;
 - Electronic Control Of Transmission;
 - Direct Shift Gearbox.
- Automatic Transmission Diagnostic:
- Systematic Testing;
 - Test Equipment;
 - Test Results;
 - Automatic Gearbox Fault Diagnosis;
 - ECAT Fault Diagnosis;
 - Automatic Transmission Stall Test.

Module 4 (Double Credit) Automotive Electrical Wiring

M4 - Part 1: Automotive Electrical Principles and Circuits

- Electrical Principles;
- High Current or Low Voltage;
- Ohm's Law;
- The Power of Formula;
- Combinations;
- Kirchhoff's Law;

- Forming and Tracing a Circuit;
- Wire Resistance Chart;
- Installing an Electric Fuel Pump;
- On-Board Computer Risks;
- Battery Disconnecting.

M4. Part 2: Tools for Automotive Wiring

- Essential Tools for Auto Electrical Wiring;
- Using Test Lights;
- Using Analogue Multi-Meters;
- Using Digital Multi-Meters;
- Functions Multi-Meter.

M4. Part 3: Essentials of Automotive Wiring

- Essential Connections;
- Crimp-Style Connections;
- Using Crimping Tools;
- Soldering Iron and Guns;
- Insulating Connections;
- Temporary Mechanical Connectors;
- Distribution-Type Connectors;
- Connectors and Plugs;
- Basics for AWG Wire 8 and Larger;
- Ignition Switches, Wiring Harness and Controllers;
- Ignition Switch;
- Wiring Harness;
- Essentials of Controllers.

M4. Part 4: Power Accessories and the Charging System

- Electronic Door Lock Circuits;
- Electronic Window Circuits;
- The Charging System.

M4. Part 5: Equipment Wiring and Component Upgrade

- Observing Safety;
- Metal Barrier;
- Tachometer Installation;
- The Charging System;
- Work Protection.

M4. Part 6: Troubleshooting

- Flowcharts;
- Typical Problems;
- Circuit Inoperable;
- Blown Circuits;
- Blown Fuses;
- Working to Burned Up Wiring;
- Detecting Faulty Battery: Battery Testing Methods;
- Checking Intermittent Circuit Operation.

M4. Part 7: Installation and Interface

- Power Door Lock and Power Window Circuit Interfacing;
- Factory Wiring Diagrams;
- Power Sunroof and Convertible Top Circuit Interfacing;
- Upgrading Headlights to Higher Power Units;
- Auxiliary Battery;
- Accessory Fuse Panel.

M4. Part 8: Developing Wiring Harness

- Essentials of Harness;
- Building a Harness from the Start;
- Harness Construction Project.

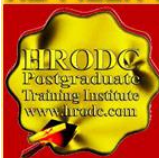
Module 5 (Double Credit) Automotive Repair and Maintenance

M5. Part 1: The Fuel System

- Carburetors;
- Carburetors Drawbacks;
- Fuel Injection;
- Electronic Fuel Injection;
- Engine Management System;
- Caring for the Fuel System ;
- Fuel Filter Change;
- Air Filter Changes;
- Choosing the Correct Fuel;
- Pre-Ignition and Detonation;

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M. RG. C.

- Oxygenated Fuel;
- Dealing With Fuel in Cold Weather;
- Fuel System Troubleshooting.

M5. Part 2: Automotive Engine

- Diesel Engines;
- Hybrids;
- Modern Combustion Technology;
- Checking the Coolant;
- Checking the Oil;
- Synthetic Oils;
- Air Cleaner Changes;
- Repairing Leaks;
- Coolant Leaks;
- Engine Troubleshooting.

M5. Part 3: Automotive Electrical System

- The Battery;
- Important Terms Associated with Battery;
- Reasons for Automotive Battery Failures;
- Battery Maintenance;
- Alternator and Charging System;
- Charging System Test;
- Starting System;
- Dealing with No-Start Engine;
- Quick Starting System Test;
- Booster Cables;
- Determining the Condition of the Parts;
- Spark;

- The Electrical System;
- Electronic Control Modules;
- Dealing with Thing Shortage, Fizzle and Death;
- The Fuses Relays and Connection Principles;
- Electrical System Troubleshooting.

M5. Part 4: The Cooling System

- Cooling System Maintenance;
- Corrosion;
- Drive Belt, Radiator and Heater Hose Care;
- Troubleshooting;
- Overheating of Engine: Signs;
- Cooling System Troubleshooting.

M5. Part 5: The Drivetrain

- Transmission;
- Shifting Manuals Transmission;
- Automatic Transmissions;
- How Automatic Transmissions Change Gears;
- Modern Automatic Transmission Technology;
- The Differential;
- All-Wheel Drive;
- Drivetrain Maintenance;
- Drivetrain Troubleshooting.

M5. Part 6: Automotive Suspension and Steering

- Springs;
- Shocks and Struts;
- Steering System;
- The DIY Alignment;

- Power Steering;
- Suspension or Steering Maintenance and Repair;
- When to Replace Shocks and Struts;
- MacPherson Struts;
- Checking Alignment;
- Toe;
- Camber;
- Positive Camber;
- Negative Camber;
- Caster;
- Importance of Alignment;
- Active Suspension Systems;
- Suspension or Steering Troubleshooting.

M5. Part 7: Tyres and Wheels

- Guidelines in Buying Tyre;
- Tyre Wear Assessment;
- Tyres Pressure;
- Tyres by the Numbers;
- More Letters and Numbers;
- Mud and Snow Tyres;
- Tire Care;
- Visual Inspection of the Tyre;
- Tyre Replacement;
- Tire and Wheel Balancing Troubleshooting.

M5. Part 8: Brakes

- Hydraulic Brakes;
- Why Hydraulics?;
- Key Components;
- Antilock Braking System;

Comprehensive Automotive Electrical, Electronic and Mechanical Diagnostic, Maintenance and Repair Programme, Leading to Postgraduate Diploma in Automotive Electrical, Electronic and Mechanical Diagnostic, Maintenance and Repair

- Traction and Stability Control;
- Brake System Maintenance;
- Brake Fade;
- Brake System Troubleshooting.

M5. Part 9: The Exhaust System

- Guidelines on the Exhaust System;
- Catalytic Converter;
- Oxygen Sensors;
- Exhaust Maintenance;
- Diagnosis and Causes of Exhaust Failure;
- Replacement Advice;
- Oxygen Sensor Maintenance;
- Emission Warranties;
- Heat Shield Failure;
- Exhaust System Troubleshooting.

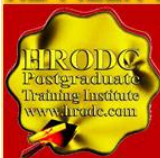
Postgraduate Diploma, Postgraduate Certificate, and Diploma – Postgraduate - Short Course Regulation

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

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

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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

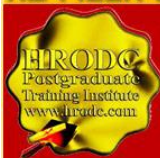
Because of the intensive nature of our courses and programmes, assessment will largely be in-course, adopting differing formats. These assessment formats include, but not limited to, in-class tests, assignments, end of course examinations. Based on these assessments, successful candidates will receive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

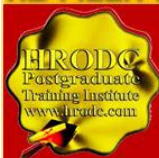
- The tutor meets the group and presents the course, via Video, in a similar way to its classroom-based counterpart;
- All participants are able to see, and interact with, each other, and with the tutor;
- They watch and discuss the various video cases and demonstrations that form an integral part of 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 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.

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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.

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)

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

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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 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.**

Comprehensive Automotive Electrical, Electronic and Mechanical Diagnostic, Maintenance and Repair Programme, Leading to Postgraduate Diploma in Automotive Electrical, Electronic and Mechanical Diagnostic, Maintenance and Repair

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

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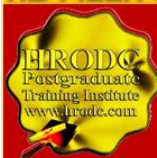
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