ICTQual AB

Qualification Specification

Level 2 Diploma in Automotive Engineering
30 Credits – 3 Months

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Qualification Specifications about

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About ICTQual AB

ICTQual AB UK Ltd. is a distinguished awarding body based in the United Kingdom, dedicated to fostering excellence in education, training, and skills development. Committed to global standards, ICTQual AB provides internationally recognized qualifications that empower individuals and organizations to thrive in an increasingly competitive world. Their offerings span diverse industries, including technical fields, health and safety, management, and more, ensuring relevance and adaptability to modern workforce needs.

The organization prides itself on delivering high-quality educational solutions through a network of Approved Training Centres worldwide. Their robust curriculum and innovative teaching methodologies are designed to equip learners with practical knowledge and skills for personal and professional growth. With a mission to inspire lifelong learning and drive positive change, ICTQual AB continuously evolves its programs to stay ahead of industry trends and technological advancements.

ICTQual AB's vision is to set benchmarks for educational excellence while promoting inclusivity and integrity. Their unwavering focus on quality and accessibility makes them a trusted partner in shaping future-ready professionals and advancing societal progress globally.

Course Overview

The ICTQual Level 2 Diploma in Automotive Engineering is a comprehensive 30-credit program designed to equip learners with foundational knowledge and practical skills essential for the automotive industry. Over a three-month period, participants will delve into critical areas such as engine mechanics, electrical systems, and vehicle diagnostics, ensuring a well-rounded understanding of modern automotive technologies. The curriculum emphasizes hands-on training, allowing students to apply theoretical concepts in real-world scenarios, thereby bridging the gap between classroom learning and industry application.

This diploma is ideal for individuals aspiring to roles in automotive repair workshops, manufacturing units, or maintenance departments. Graduates will be proficient in tasks including vehicle inspection, engine diagnostics, and component assembly, all performed in adherence to industry standards and safety protocols. Additionally, the program explores emerging trends in automotive technology, such as advancements in hybrid and electric vehicles, preparing students for the evolving demands of the automotive sector. Upon successful completion, learners will be well-prepared to pursue various career paths or further studies in automotive engineering.

Certification Framework

Qualification title	**ICTQual Level 2 Diploma in Automotive Engineering 30 Credits – 3 Months**
Course ID	AE0005
Qualification Credits	30 Credits
Course Duration	3 Months
Grading Type	Pass / Fail
Competency Evaluation	Coursework / Assignments / Verifiable Experience
Assessment	The assessment and verification process for ICTQual qualifications involves two key stages: **Internal Assessment and Verification:** ✓ Conducted by the staff at the Approved Training Centre (ATC). Ensures learners meet the required standards through continuous assessments. ✓ Internal quality assurance (IQA) is carried out by the centre's IQA staff to validate the assessment processes. **External Quality Assurance:** ✓ Managed by ICTQual AB verifiers, who periodically review the centre's assessment and IQA processes. ✓ Verifies that assessments are conducted to the required standards and ensures consistency across centres

Entry Requirements

To enrol in the ICTQual Level 2 Diploma in Automotive Engineering 30 Credits – 3 Months, candidates must meet the following entry requirements:

- ✓ Applicants must be at least 16 years old.
- ✓ A minimum of Level 1 qualification (or equivalent) in a related field such as mechanics, technology, or science. Alternatively, applicants should have at least GCSEs or equivalent qualifications, including Mathematics and English.
- ✓ While no prior automotive engineering experience is required, applicants with a basic understanding of vehicles, mechanics, or technical systems may find the course easier to navigate.
- ✓ For non-native English speakers, proof of English language proficiency may be required.

Qualification Structure

This qualification comprises 3 mandatory units, totalling 30 credits. Candidates must successfully complete all mandatory units to achieve the qualification.

Mandatory Units		
Unit Ref#	**Unit Title**	**Credits**
AE0005 - 1	Fundamentals of Automotive Engineering	10
AE0005 - 2	Vehicle Diagnostics and Maintenance	10
AE0005 - 3	Applied Automotive Skills in Workshop Environment	10

Centre Requirements

Even if a centre is already registered with ICTQual AB, it must meet specific requirements to deliver the ICTQual Level 4 Diploma in Automotive Engineering 30 Credits – 3 Months. These standards ensure the quality and consistency of training, assessment, and learner support.

1. Approval to Deliver the Qualification

- ✓ Centres must obtain formal approval from ICTQual AB to deliver this specific qualification, even if they are already registered.
- ✓ The approval process includes a review of resources, staff qualifications, and policies relevant to the program.

2. Qualified Staff

- ✓ **Tutors:** Must have relevant qualifications in Automotive Engineering at Level 3 or higher, alongside teaching/training experience.
- ✓ **Assessors:** Must hold a recognized assessor qualification and demonstrate expertise in Automotive Engineering
- ✓ **Internal Quality Assurers (IQAs):** Must be appropriately qualified and experienced to monitor the quality of assessments.

3. Learning Facilities

Centres must have access to appropriate learning facilities, which include:

- ✓ **Classrooms:** Modern classrooms equipped with multimedia tools for in-depth theoretical learning on automotive systems, vehicle dynamics, and cutting-edge automotive technologies.
- ✓ **Practical Areas**: Fully equipped workshops featuring advanced automotive tools and diagnostic equipment, including engines, transmission systems, braking systems, and electrical components for hands-on training and skill assessments.
- ✓ **Technology Access:** High-performance computers with industry-standard software (e.g., CAD for vehicle design, diagnostic software, simulation tools) and internet access for research, analysis, and project work.

4. Health and Safety Compliance

- ✓ Centres must ensure that practical training environments comply with relevant health and safety regulations.
- ✓ Risk assessments must be conducted regularly to maintain a safe learning environment.

5. Resource Requirements

- ✓ Learning Materials: Approved course manuals, textbooks, and study guides aligned with the curriculum.
- ✓ Assessment Tools: Templates, guidelines, and resources for conducting and recording assessments.
- ✓ E-Learning Systems: If offering online or hybrid learning, centres must provide a robust Learning Management System (LMS) to facilitate remote delivery.

6. Assessment and Quality Assurance

- ✓ Centres must adhere to ICTQual's assessment standards, ensuring that all assessments are fair, valid, and reliable.
- ✓ Internal quality assurance (IQA) processes must be in place to monitor assessments and provide feedback to assessors.
- ✓ External verification visits from ICTQual will ensure compliance with awarding body standards.

7. Learner Support

- ✓ Centres must provide learners with access to guidance and support throughout the program, including:
- ✓ Academic support for coursework.
- ✓ Career guidance for future progression.
- ✓ Additional support for learners with specific needs (e.g., disabilities or language barriers).

8. Policies and Procedures

Centres must maintain and implement the following policies, as required by ICTQual:

- ✓ Equal Opportunities Policy.
- ✓ Health and Safety Policy.
- ✓ Safeguarding Policies and Procedures.
- ✓ Complaints and Appeals Procedure.
- ✓ Data Protection and Confidentiality Policy.

9. Regular Reporting to ICTQual

- ✓ Centres must provide regular updates to ICTQual AB on learner enrolment, progress, and completion rates.
- ✓ Centres are required to maintain records of assessments and learner achievements for external auditing purposes.

Support for Candidates

Centres should ensure that materials developed to support candidates:

- ✓ Facilitate tracking of achievements as candidates progress through the learning outcomes and assessment criteria.
- ✓ Include information on how and where ICTQual's policies and procedures can be accessed.
- ✓ Provide mechanisms for Internal and External Quality Assurance staff to verify and authenticate evidence effectively.

This approach ensures transparency, supports candidates' learning journeys, and upholds quality assurance standards.

Assessment

This qualification is competence-based, requiring candidates to demonstrate proficiency as defined in the qualification units. The assessment evaluates the candidate's skills, knowledge, and understanding against the set standards. Key details include:

1. **Assessment Process:**

   - ✓ Must be conducted by an experienced and qualified assessor.
   - ✓ Candidates compile a portfolio of evidence that satisfies all learning outcomes and assessment criteria for each unit.

2. **Types of Evidence:**

   - ✓ Observation reports by the assessor.
   - ✓ Assignments, projects, or reports.
   - ✓ Professional discussions.
   - ✓ Witness testimonies.
   - ✓ Candidate-produced work.
   - ✓ Worksheets.
   - ✓ Records of oral and written questioning.
   - ✓ Recognition of Prior Learning (RPL).

3. **Learning Outcomes and Assessment Criteria:**

   - ✓ **Learning Outcomes:** Define what candidates should know, understand, or accomplish upon completing the unit.
   - ✓ **Assessment Criteria:** Detail the standards candidates must meet to demonstrate that the learning outcomes have been achieved.

This framework ensures rigorous and consistent evaluation of candidates' competence in line with the qualification's objectives.

Unit Descriptors

AE0005 - 1: Fundamentals of Automotive Engineering

The aim of this study unit is to provide students with a solid foundation in the fundamental principles of automotive engineering, focusing on the operation of automotive systems, engine mechanics, and drivetrain functionality. Students will gain a clear understanding of key vehicle components and their respective roles in vehicle performance. The unit also emphasizes the development of practical skills, including the correct use of basic tools and equipment required for automotive repairs. Additionally, students will learn how to apply workplace safety standards and regulatory compliance protocols in an automotive environment, ensuring safe and efficient practices in the automotive industry.

Learning Outcome:	Assessment Criteria:
1. Understand the basic principles of automotive systems, including engine operation and drivetrain mechanics.	1.1. Analyse the fundamental principles governing automotive systems, including the interaction between key mechanical components. 1.2. Evaluate the operational mechanisms of internal combustion engines and their role in vehicle performance. 1.3. Demonstrate a comprehensive understanding of drivetrain components and their functions within an automotive system. 1.4. Assess the efficiency and mechanical processes involved in power transmission from the engine to the wheels. 1.5. Interpret technical diagrams and schematics related to engine operation and drivetrain mechanics. 1.6. Apply industry-standard terminology and concepts to describe the functionality of automotive systems accurately.
2. Identify key vehicle components and their functions.	2.1. Analyse the role and significance of essential vehicle components within an automotive system. 2.2. Demonstrate a clear understanding of the functionality and interaction of key mechanical, electrical, and electronic components. 2.3. Accurately classify and describe major vehicle parts, including their structural and operational characteristics. 2.4. Evaluate the impact of different components on overall vehicle performance and efficiency. 2.5. Interpret technical documentation and

	schematics to identify component specifications and applications. 2.6. Apply industry-standard terminology to explain the functions and interdependencies of vehicle components.
3. Demonstrate the correct use of basic tools and equipment in automotive repairs.	3.1. Identify and select appropriate tools and equipment for specific automotive repair tasks in accordance with industry standards. 3.2. Demonstrate proper handling, usage, and maintenance of basic automotive tools to ensure safety and efficiency. 3.3. Apply correct techniques for using hand and power tools in various automotive repair procedures. 3.4. Assess the suitability of different tools for diagnosing, repairing, and maintaining vehicle components. 3.5. Adhere to health, safety, and environmental regulations when operating automotive repair equipment. 3.6. Evaluate the effectiveness of tool usage in achieving accurate and reliable repair outcomes.
4. Apply workplace safety and compliance protocols effectively in an automotive environment.	4.1. Demonstrate a thorough understanding of workplace safety regulations and compliance protocols specific to the automotive industry. 4.2. Apply personal protective equipment (PPE) correctly and ensure its use by others in the automotive work environment. 4.3. Identify potential hazards in the workplace and implement measures to mitigate risks in accordance with safety guidelines. 4.4. Follow established procedures for handling, storing, and disposing of hazardous materials and chemicals used in automotive work. 4.5. Maintain a clean and organized work environment to promote safety and reduce accidents or equipment damage. 4.6. Ensure compliance with local and international health and safety regulations during all automotive repair and maintenance activities.

AE0005 - 2: Vehicle Diagnostics and Maintenance

The aim of this study unit is to equip students with the skills and knowledge required to perform diagnostic procedures and maintenance tasks on key vehicle systems. Students will learn to identify issues in engine and electrical systems through basic diagnostic techniques and will develop the ability to conduct maintenance on critical components such as brake systems, suspension, and steering. The unit will also provide students with the tools to troubleshoot and resolve common mechanical and electrical problems. Additionally, students will gain proficiency in using advanced diagnostic tools and software to assess and ensure the optimal functionality of vehicles.

Learning Outcome:	Assessment Criteria:
1. Perform basic diagnostic procedures for identifying issues in engine and electrical systems.	1.1. Apply industry-standard diagnostic tools and techniques to identify faults in engine and electrical systems. 1.2. Demonstrate the ability to interpret diagnostic readings and data to pinpoint potential issues accurately. 1.3. Evaluate the performance of engine and electrical components to assess their functionality and detect malfunctions. 1.4. Follow manufacturer's guidelines and specifications to conduct diagnostic procedures effectively. 1.5. Record and report diagnostic findings clearly, ensuring appropriate recommendations for repair or further investigation. 1.6. Apply troubleshooting strategies to isolate and resolve common engine and electrical system issues.
2. Conduct maintenance tasks on brake systems, suspension, and steering components.	2.1. Perform routine maintenance procedures on brake systems, ensuring all components are functioning optimally and in compliance with safety standards. 2.2. Inspect suspension components for wear or damage, and apply appropriate maintenance techniques to restore or replace parts as necessary. 2.3. Conduct thorough checks on steering mechanisms to identify potential issues and carry out corrective maintenance actions. 2.4. Use diagnostic tools to assess the performance and condition of brake, suspension, and steering systems. 2.5. Follow manufacturer's specifications and

	industry best practices to ensure maintenance tasks are carried out effectively and safely. 2.6. Maintain detailed records of maintenance activities, including any parts replaced or repaired, in accordance with industry standards.
3. Troubleshoot and resolve common mechanical and electrical issues.	3.1. Identify and diagnose common mechanical and electrical issues using appropriate diagnostic tools and techniques. 3.2. Apply systematic troubleshooting procedures to isolate the root cause of mechanical and electrical failures. 3.3. Implement effective solutions to repair or replace faulty components, ensuring proper functionality is restored. 3.4. Evaluate the performance of repaired systems to confirm issues have been resolved. 3.5. Document troubleshooting processes and outcomes, ensuring accurate records for future reference. 3.6. Adhere to manufacturer guidelines and industry best practices when addressing mechanical and electrical issues.
4. Utilize diagnostic tools and software to ensure vehicle functionality.	4.1. Identify and diagnose common mechanical and electrical issues using appropriate diagnostic tools and techniques. 4.2. Apply systematic troubleshooting procedures to isolate the root cause of mechanical and electrical failures. 4.3. Implement effective solutions to repair or replace faulty components, ensuring proper functionality is restored. 4.4. Evaluate the performance of repaired systems to confirm issues have been resolved. 4.5. Document troubleshooting processes and outcomes, ensuring accurate records for future reference. 4.6. Adhere to manufacturer guidelines and industry best practices when addressing mechanical and electrical issues.

AE0005 - 3: Applied Automotive Skills in Workshop Environment

The aim of this study unit is to provide students with the opportunity to apply their theoretical knowledge to hands-on tasks in a real-world automotive workshop setting. Students will develop proficiency in servicing and repairing vehicles, gaining practical experience with various automotive systems. The unit will also emphasize teamwork and collaboration within a professional workshop environment, preparing students to work effectively in the automotive industry. By completing a service and repair project, students will demonstrate their diagnostic skills, technical abilities, and ability to manage tasks within a dynamic workshop context.

Learning Outcome:	Assessment Criteria:
1. Demonstrate hands-on proficiency in servicing and repairing vehicles in a workshop setting.	1.1. Apply industry-standard techniques to service and repair various vehicle systems, demonstrating competence in both mechanical and electrical tasks. 1.2. Safely operate workshop tools and equipment to carry out repairs, adhering to all health and safety protocols. 1.3. Perform maintenance and repair procedures according to manufacturer specifications, ensuring high-quality workmanship. 1.4. Diagnose vehicle issues accurately and implement effective solutions in a workshop environment. 1.5. Maintain a clean and organized workspace to promote safety and efficiency during vehicle servicing and repairs. 1.6. Document service and repair activities, ensuring records are clear, accurate, and in line with industry standards.
2. Apply theoretical knowledge to practical tasks involving real-world automotive systems.	2.1. Use theoretical principles to inform and guide the diagnosis, maintenance, and repair of real-world automotive systems. 2.2. Demonstrate the ability to translate knowledge of engine, electrical, and mechanical systems into effective hands-on solutions. 2.3. Apply scientific and engineering concepts to troubleshoot and resolve issues in complex automotive systems. 2.4. Assess the functionality of automotive components, using theoretical knowledge to identify potential faults or inefficiencies. 2.5. Integrate technical understanding with practical tasks, ensuring that solutions are

	both accurate and efficient. 2.6. Evaluate real-world automotive scenarios, adjusting theoretical knowledge to account for variables and practical limitations.
3. Collaborate effectively in a team within a professional workshop environment.	3.1. Communicate clearly and professionally with team members, ensuring coordination and effective task delegation within the workshop. 3.2. Demonstrate respect and collaboration in diverse teams, contributing positively to group problem-solving and decision-making processes. 3.3. Share expertise and support colleagues in completing tasks, promoting a cooperative and productive workshop environment. 3.4. Work efficiently within team-based workflows, ensuring all tasks are completed in a timely and safe manner. 3.5. Adapt to team dynamics and adjust individual work methods to ensure the successful completion of shared objectives. 3.6. Maintain professionalism by upholding workshop standards, contributing to a culture of mutual respect and accountability.
4. Complete a service and repair project showcasing practical and diagnostic skills.	4.1. Plan and execute a comprehensive service and repair project, applying appropriate diagnostic tools and techniques to identify issues. 4.2. Demonstrate proficiency in servicing and repairing key vehicle systems, including engine, transmission, and electrical components. 4.3. Record and document the diagnostic process, repair actions, and outcomes clearly and accurately. 4.4. Apply industry best practices and safety standards throughout the project to ensure high-quality results. 4.5. Evaluate the effectiveness of repairs, confirming that vehicle systems are restored to optimal functionality. 4.6. Present the completed project, showcasing both technical competence and attention to detail in all aspects of service and repair.

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