Automotive Workshop Practices

AWP110109, TQA Level 1, Size Value = 10

THE COURSE DOCUMENT
This document contains the following sections:
COURSE SIZE AND COMPLEXITY ................................................................. 1
COURSE DESCRIPTION ........................................................................... 1
RESOURCES ............................................................................................... 2
LEARNING OUTCOMES ........................................................................... 2
COURSE CONTENT ..................................................................................... 3
WORK EXPECTATIONS ............................................................................ 5
ASSESSMENT ............................................................................................... 5
  QUALITY ASSURANCE PROCESSES ..................................................... 5
  COMPETENCIES ..................................................................................... 6
  MINIMUM STANDARDS ........................................................................... 6
  HIGHLY COMPETENT STANDARDS ....................................................... 7
  QUALIFICATIONS AVAILABLE .............................................................. 7
  AWARD REQUIREMENTS ....................................................................... 7
COURSE EVALUATION ............................................................................ 7
COURSE DEVELOPER ............................................................................ 7
ACCREDITATION ....................................................................................... 7
VERSION HISTORY .................................................................................. 7

COURSE SIZE AND COMPLEXITY
This course has been assessed as having a complexity level of TQA level 1.
TQA level 1 - the learner is expected to carry out tasks and activities that will draw on an appropriate range of basic knowledge and skills. The tasks and activities generally have a substantial repetitive aspect to them. Minimum judgement is needed as there are usually very clear rules, guidelines or procedures to be followed. TQA level 1 is an approximate match to Tasmanian Certificate of Education (TCE) level 2 courses and VET competencies at this level are often those characteristic of an AQF Certificate I.

This course has a size value of 10 (design-time 100 hours).

COURSE DESCRIPTION
Automotive Workshop Practices offers learners the opportunity to gain an understanding of automotive systems through practical application. This is achieved through the completion of a sequence of practical experiences and the application of knowledge gained through following standard workshop procedures and routines.

Students learn automotive processes and safe working practices, both individually and as a member of a group.

This course is based on the repair and service of motor vehicles and powered outdoor equipment.
RESOURCES
Automotive Workshop Practices requires specialist tools and equipment. The resources outlined below are basic requirements. Other tools and equipment may be added as required. Multiples of common hand tools are recommended.

Automotive workshop:
This space must meet Workplace standards with ventilation, lighting, fume extraction, access and egress. It must have adequate storage for tools and on-going projects and bench spaces for student work areas. Multiple engines should be available on which students can complete practical tasks and exercises.

Hand washing area/facilities.

<table>
<thead>
<tr>
<th>Hand tools</th>
<th>Lifting equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Mechanics tool chest</td>
<td>• Floor jack</td>
</tr>
<tr>
<td>• Torque wrench</td>
<td>• Axle stands</td>
</tr>
<tr>
<td>• Gear pullers</td>
<td>• Vehicle hoist (optional)</td>
</tr>
<tr>
<td>• Valve spring compressor</td>
<td>• Engine lifting equipment (optional)</td>
</tr>
<tr>
<td>• Ring compressor</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Test equipment</th>
<th>Power and pneumatic tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Compression tester</td>
<td>• Impact gun</td>
</tr>
<tr>
<td>• Multimeter</td>
<td>• Hand drill</td>
</tr>
<tr>
<td>• Micrometers inside and outside</td>
<td>• Angle grinder</td>
</tr>
<tr>
<td>• Vernier calipers</td>
<td>• Air compressor</td>
</tr>
<tr>
<td>• Timing light</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Personal protective equipment</th>
<th>Workshop manuals</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Ear muffs</td>
<td>• Automotive text books</td>
</tr>
<tr>
<td>• Safety glasses</td>
<td>• Material safety data sheets</td>
</tr>
<tr>
<td>• Barrier cream</td>
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</tbody>
</table>

LEARNING OUTCOMES
Through studying this course, learners will:

• develop skills to correctly identify, prepare, clean, maintain and store relevant equipment
• develop skills to select correct tools and techniques in the repair and analysis of automotive projects
• develop skills to safely use a range of nominated techniques in the completion of repairs and servicing of automotive applications
• develop skills to select appropriate techniques and equipment to complete projects
• apply and complete the process of repair and servicing to specified standards and appraising results
• understand and demonstrate safe work practices
• apply occupational health and safety procedures
• develop confidence in analysis and repair of automotive systems
• demonstrate problem-solving associated with practical experiences
• develop an awareness of career and further study options.
COURSE CONTENT

Automotive principles and systems. Learners will identify the:

- four stroke petrol engine
- cooling system and components
- fuel system and components
- ignition system and components
- lubrication system and components
- limited electrical system and components
- four stroke operating cycle.

With this course, the range of techniques used would generally be quite limited in nature and will include:

- dismantling, marking and storing of components
- reassembly of components and sub-systems
- manual reading
- materials handling
- use of personal protective devices
- following standard operating and elimination procedures
- limited identification of fasteners and fittings.

Tools and equipment use and identification will include:

- common mechanical tools (spanners, pliers, sockets, screwdrivers)
- cutting and forming (hacksaw, files)
- measuring
- floor jacks.

Materials will include:

- oil and lubrication products
- gasket materials and sealants
- coolant
- replacement parts
- cleaners and solvents
- seals and gaskets.

Workshop procedures will relate to:

- safety
- process-specific procedures
- correct use of materials
- reporting findings (non-compliant parts)
- cleaning of parts and sub-assemblies
- workspace etiquette with regard to other users.

Organisation and maintenance of the workshop will relate to:
• lighting
• ventilation
• preparation of vehicle/powered equipment
• storage of ongoing projects
• housekeeping of workspace
• setting out tools and equipment required for task.

Checking procedures will include:
• micrometers
• compression testing
• timing lights.

Workshop practice will be based on the following:
• repair to engines, drive train and ancillary systems
• outdoor power equipment repair and servicing
• periodic servicing and inspection of automotive applications
• identification of systems and components.

Reporting and documenting:
• completion of work sheets
• research assignments.

Occupational health and safety and hygiene:
• compliance with workshop safety procedures
• correct manual handling technique
• monitored use of personal protective devices
• monitored disposal of waste products
• some reporting and identification of hazards.

Automotive Workshop Practices attributes:
• consideration of others
• follow routines
• respect equipment and facilities.

Workspace communication will include:
• read and interpret manuals and charts
• correct use of terminology
• appropriate use of language.
WORK EXPECTATIONS

It is expected students will complete a sequence of practical tasks based on automotive applications and the systems contained within.

The tasks should include identification of components, dismantling and reassembly of components contained within and automotive system and application. Automotive Workshop Practices is a processes based course and students will not have a body of completed products. It is necessary, therefore, to record progress and completion of workshop practise through the use of work sheets, journal entries or other appropriate means.

It is expected students will complete work practice assignments which will reflect the content outlined.

ASSESSMENT

Competency based assessment is a form of performance based assessment that measures student achievement in skills and knowledge against a predetermined standard. For this course two ratings are available: ‘competent’ or ‘not yet competent’. Assessment may be made at any point in the learning program.

Each competency in this course is described by performance indicators. In judging whether a student is competent an assessor will be guided by the indicators but final assessment will be an overall, on-balance judgment based on validated evidence. The indicators are not intended to form a ‘checklist’ of sub-competencies which must all be met in order for a ‘competency’ rating to be awarded.

Assessment methodologies may include – but are not limited to – written, electronic and oral presentations/discussions, direct assessor observation of learners’ skills, and written and/or practical testing.

Assessment instruments/tools need not be restricted to any single competency. An assessment instrument may assess more than one competency at a time.

Learners who are assessed as ‘not yet competent’ are provided with further opportunities to demonstrate competency within the scope of the course’s design-time and TQA reporting requirements.

QUALITY ASSURANCE PROCESSES

The following process will be facilitated by the TQA to ensure there is:

- a match between the competencies specified in the course and the skills and knowledge demonstrated by students
- community confidence in the integrity and meaning of the qualification.

Process – The TQA will verify that the provider’s course delivery and assessment standards meet the course requirements and community expectations for fairness, integrity and validity of qualifications the Authority issues. This will involve checking:

- student attendance records; and
- course delivery plans (the sequence of course delivery/tasks and when assessments take place):
  - assessment instruments and rubrics (the ‘rules’ or marking guide used to judge achievement)
  - class records of assessment
  - examples of student work that demonstrate the use of the marking guide
  - samples of current student’s work, including that related to any work requirements articulated in the course document.

This process will usually also include interviews with past and present students.

It will be scheduled by the TQA using a risk-based approach.
COMPETENCIES

The assessment for the course is based on whether a student can:

1. prepare, use and maintain physical resources for workshop practice
2. select, and use appropriate tools and equipment for workshop practice
3. carry out workshop practice in accordance with instruction
4. understand and apply occupational health and safety procedures.

MINIMUM STANDARDS

<table>
<thead>
<tr>
<th>Competency</th>
<th>Performance Indicators</th>
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| 1. Prepare, use and maintain physical resources for the completion of practical projects | • correctly identify and select tools, equipment and materials required to complete specified tasks  
• prepare, use, clean and maintain tools, equipment and materials in accordance with designated procedures and safety requirements  
• store tools, equipment and materials in accordance with specified procedures and safety requirements  
• prepare work area as required to complete the process or task. |
| 2. Select and use appropriate tools and equipment for workshop practice | • safely use techniques for the completion of workshop practice  
• use nominated techniques in a workshop practice procedure  
• tools and equipment selected are appropriate for the application  
• equipment is use in accordance to manufacturer’s instruction. |
| 3. Carry out workshop practice in accordance with instruction | • correctly identify the steps and resources required to complete the given task  
• select appropriate tools, equipment and materials for the specific assignment  
• complete the process/procedure to a specified standard  
• dispose of waste product correctly  
• describe nominated system or component  
• repaired or serviced item is checked as per instruction. |
| 4. Understand and apply occupational health and safety procedures | • recognise and report some potential workshop hazards  
• demonstrate awareness of the basic steps of some common workshop emergency procedures  
• follow safe workshop procedures  
• use techniques, tools and materials safely to produce the final project  
• waste products are disposed of in accordance with manufacturer’s and Australian standards guidelines. |
HIGHLY COMPETENT STANDARDS
A leaner who is competent in all competencies may be assessed as ‘highly competent’ if, in addition to the minimum standards, they:

- demonstrate consistency in the use of techniques and processes used to complete workshop practice activities
- demonstrate consistent application in the completion of workshop practice
- demonstrate efficient use of materials and time in the completion of workshop practice activities.

QUALIFICATIONS AVAILABLE
Automotive Workshop Practice, TQA level 1 *(with the award of)*:
PASS
Automotive Workshop Practice, TQA level 1 *(with the award of)*:
HIGHER PASS

AWARD REQUIREMENTS
The minimum requirements for an award in this course are: ‘competent’ rating in all competencies.

A learner who meets the requirements for the course will be issued with a PASS award. A learner who meets both the minimum standards and the ‘highly competent’ standards for the course will be issued with a HIGHER PASS award.

COURSE EVALUATION
Formal evaluations of the course will be undertaken during the second year of accreditation. An evaluation report will be provided to the TQA.

The evaluations will focus on identifying any issues in regards to:

- the match between the specified competencies in the course and the skills and knowledge demonstrated by learners
- community confidence in the integrity and meaning of the qualifications
- access, delivery and resources

and, if appropriate, make recommendations regarding changes to the course.

COURSE DEVELOPER
Department of Education.

ACCREDITATION
The accreditation period for this course is from 1\textsuperscript{st} January 2009 to 31\textsuperscript{st} December 2010.

VERSION HISTORY