Automotive Technology A/V/M

Automotive Technology provides students the opportunity to apply their enjoyment of working on cars and solving mechanical and electrical problems in a specialised subject which utilises a very hands-on approach. The practical nature of the course is supported by a solid understanding being gained in the systems and principles associated with modern cars.

Rationale

Why would you do this course?

The 2019 Skills Needs List identifies a shortage of Automotive Electricians, Body builders (Panel beaters), Spray painters and Light and Heavy vehicle mechanics. Our close relationship with CIT and industry enables students to gain a solid industry-based foundation knowledge and supports students looking to pursue career opportunities in the Automotive Industry.

Beyond the classroom, this subject offers you:

- Skills in maintaining a vehicle
- An ability to become a supportive team member
- Opportunities to extend a passion for all things auto related
- Links to future career pathways

Learner dispositions

What type of person usually studies this course?

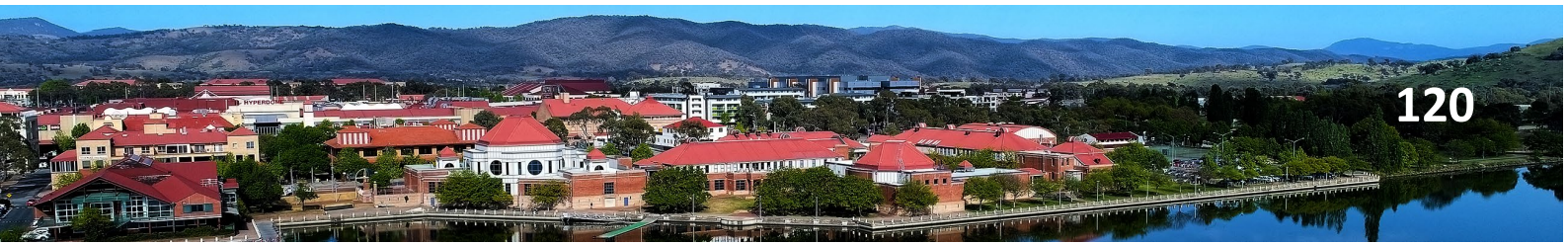
Learners who study this course typically enjoy getting their hands dirty as they appreciate pulling apart and repairing a range of components in cars and machines which utilise small engine technology. They also like to apply problem solving skills in identifying and resolving issues with cars.

Learners who study this subject will often seek to work in one of several areas associated with the Automotive Industry. Training to achieve qualifications in one of the many areas within the Automotive field is often completed through CIT.

Readiness

What courses or previous experience would make a student ready to study this subject at LTC?

There aren't any prerequisite skills required to undertake an Automotive unit of study. A student may already be an experienced back yard mechanic, or they might like to know more about the operating principles of a car for interest as well as enjoyment.



Content and Assessment Overview

In Year 11, students cover both the theoretical knowledge and practical skills associated with the dismantling and rebuilding of small engines. They progress into studying the electrical systems of cars and work on components such as starter motors and alternators and build a simulation of the lighting circuitry. In practical, students will remove and replace the front suspension of a vehicle. They will also dismantle a gearbox and re-assemble it to working order. Students will get the opportunity to use tyre changers, wheels balancers and a 3D Wheel alignment system.

In Year 12, students study the engine as a system and breakdown the major parts to identify function. Vehicle systems are investigated to understand the complete functionality of a modern car. In practical, students will rebuild a cylinder head, remove and replace the distributor on a free-standing operational engine and dismantle a vehicle engine for the purpose of taking measurements to rebuild the engine to manufacturers specifications.

Unit Breakdown and Course Pattern

Year 11: Fundamentals
Electrical Systems

Year 12: Engine Systems
Vehicle Systems

Unit 1: Fundamentals

Students study general systems, components and configurations of stationary engines, plant and vehicles. They explore areas of the automotive industry including employment sectors such as automotive mechanical, automotive electrical, automotive panel beating, automotive spare parts and automotive car sales. Students will also learn safety and emergency practices and procedures in the automotive workplace.

Unit 2: Electrical Systems

Students study electrical systems, components and configurations of plant and vehicles. They explore a range of areas for example; circuits, batteries, starter motors, alternators and electrical test equipment and sensors.

Unit 3: Engine Systems

Students study engine systems, components and configurations of plant and vehicles. They explore engine parts such as pistons, valves, camshafts, crankshafts and how the individual components interact to create a functioning engine system.

Unit 4: Vehicle Systems

Students study individual systems and how they combine to form a complete functional vehicle or plant. Some of these systems may include; wheel and tyre assemblies, suspension and braking systems. They learn to communicate effectively and resolve problems in the automotive workplace.

Types of assessment items:

- Practical projects:
  lawn mower dismantle and rebuild
  gear box sectioning
- Research and theory work
- Exams

For more information, visit the BSSS website, speak to the SLC of Technology, or visit the LTC website:
http://www.ltc.act.edu.au/Learning/unit_outlines