

# **AUTOMOTIVE LEVEL 1 AWARD AND CERTIFICATE ACTIVITY**

**Your preparation guide to get you  
ready for September**

## Welcome to the Automotive and Marine Engineering Department



## Activity Starter Pack

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# We are The Bournemouth & Poole College

We are the largest provider of Further Education (FE) and Apprenticeships in the area. Our core focus is on developing the work skills of our students, so that when they leave us, they are ready to start or to progress within their chosen career.

## Our mission

Through inspiring teaching and learning, we develop our students' work skills, life skills and knowledge, and so help to build a thriving local economy and community.

## Our values

- A passion for learning and success
- Supportive and caring
- Respectful and considerate
- A champion for equality through learning
- Ambitious and tenacious

## Meet the team

The Automotive and Marine Engineering department covers a wide range of FT, PT and apprentice studies to help you progress and achieve your aspirations. We have a wide variety of personal experience and knowledge. We have excellent facilities to provide both excellent theory and practical sessions.

**Peter Leech** - Learning Manager

**Kevin Chappell** - Lead Tutor

**Michael Marshall** - Marine/Engineering/ Automotive Engineering Lecturer

**Owen Davies** - Marine/Engineering/ Automotive Engineering Lecturer

**Dan Lovett** - Marine/Engineering/ Automotive Engineering Lecturer

**David Wheeler** - Automotive Engineering Lecturer

**Steve Smith** - Automotive Engineering Lecturer

**Lee James** - Automotive Engineering Lecturer

**Richard Broden-Cowell** - Marine Lecturer

**Brian McKeown** - Marine Lecturer

**Steve Lunn** - Boatbuilding Lecturer

## Useful Contacts

**Automotive office:** 01202205668 or [automotive@bpc.ac.uk](mailto:automotive@bpc.ac.uk)

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# The Course Overview

**Name:** Automotive Transport Maintenance (Award & Certificate)

**Level :** 1

**Awarding Body:** IMI

**Progression:** Level 2 or Apprenticeship

**Units:** The course is split into two main sections the Award and the Certificate. Below is the curriculum outline:

| <b>Award Core Units</b>   |
|---|
| Health and Safety in the Workplace                                  |
| Locating, Interpreting and Using Technical Information              |
| Introduction to Low Carbon Technologies in the Automotive Industry  |
| Preparation to Become a Vehicle Driver                              |
| Routine Vehicle Maintenance Processes and Procedures                |
| <b>Certificate Units</b>  |
| Health and Safety Practices in a Maintenance and Repair Environment |
| Tools, Equipment and Consumable Materials for Vehicle Maintenance   |
| Applying Engineering Techniques in an Automotive Environment        |
| Preparation for Riding a Motorcycle or Moped                        |
| Air and Liquid Cooling System Components and Operation              |
| Spark Ignition Engine System Components and Operation               |
| Light Vehicle Braking System Components and Maintenance             |
| Light Vehicle Exhaust System Components and Maintenance             |
| Lighting System Maintenance   |

All units are subject to change as required.

## Automotive Safety Rules

The following are safety rules that must be obeyed when working in the workshops:

- Wait outside the room quietly at the beginning of the lesson
- Only enter a room if a member of staff is present
- Listen carefully to instructions
- Always walk, never run
- Wear appropriate safety clothing:
  - Steel toe capped boots
  - Your Overalls
- Keep bags and stools out of the way during practical work
- Clean up any spills or pick up any dangerous items from the floor immediately
- Be aware of the fire drill for the area
- Report any accidents to the instructor immediately
- Check tools and equipment are not damaged before use
- Ensure inductions have taken place to ensure safe operation of mechanical and electrical equipment before they are switched on.
- Never handle electrical equipment with wet hands or when standing in water
- Always concentrate when using electrical equipment / sharp instruments / tools
- Operate equipment / machines on your own, avoid crowding around equipment / machines
- Switch off and if necessary unplug electrical equipment after use.
- Replace tools and clean equipment when you have finished using them
- Always leave the working area clean and tidy

## **You are responsible for your Health & Safety and the safety of others**

**I have read and understand the above:**

**Name:**

**Assessor Name:**

Confirming safety procedures have been followed by the student.

**Signatures:**

**Date:**

## Activities

Please follow and complete the below tasks that will enable you to hit the ground running and get some useful skills and knowledge built in preparation for your start date.

### Watch some videos

YouTube is a wonderful resource that we can use for research and learning!! It can be entertaining and resourceful  
Please have a look at some of the following videos/channels to prepare for the start of your qualification:

#### Automotive Basics:

- How an engine works: <https://www.youtube.com/watch?v=fTAUq6G9apg>
- Cooling system : <https://www.youtube.com/watch?v=V7inC4lOpGs>

#### Donut Media:

- Brakes - [https://www.youtube.com/watch?v=6H7nwlT\\_qNY&list=PLMNR-rOEMXB8n\\_AmBX70MoAqeKkoyHSVU&index=13&t=412s](https://www.youtube.com/watch?v=6H7nwlT_qNY&list=PLMNR-rOEMXB8n_AmBX70MoAqeKkoyHSVU&index=13&t=412s)
- Wheels - [https://www.youtube.com/watch?v=wnKci\\_kn\\_EU&list=PLF1907chpCa7R39I29VY5DygA8RgBQZBf&index=33](https://www.youtube.com/watch?v=wnKci_kn_EU&list=PLF1907chpCa7R39I29VY5DygA8RgBQZBf&index=33)
- Suspension - [https://www.youtube.com/watch?v=\\_k0Gjre1QIY&list=PLF1907chpCa7R39I29VY5DygA8RgBQZBf&index=19](https://www.youtube.com/watch?v=_k0Gjre1QIY&list=PLF1907chpCa7R39I29VY5DygA8RgBQZBf&index=19)

Valeting : [https://www.youtube.com/watch?v=NRTGnf3uJ0M&list=PLMNR-rOEMXB8n\\_AmBX70MoAqeKkoyHSVU&index=17&t=84s](https://www.youtube.com/watch?v=NRTGnf3uJ0M&list=PLMNR-rOEMXB8n_AmBX70MoAqeKkoyHSVU&index=17&t=84s)

### Create your own Garage

Within this poster, you are going to create an advert for YOUR own garage. You need to create a LOGO

- A garage name
- In addition, produce a brand slogan, i.e. Tesco's - every little helps. Nike- just do it
- Offers and what you can do

You must consider what should be on your poster, what customers want to know and how you will gauge their attention

Example <https://www.stocklayouts.com/Templates/Flyer-Ad/Auto-Repair-Flyer-Ad-Template-Design-GB0530701.aspx>



## Toolbox

Begin building a list of tools and equipment you think every mechanic needs!  
This can be in a word document or PowerPoint.

List your tools, explain where you might use them and of course a picture!

For bonus points include the price of each tool and add the end total up the cost of your toolbox.

## About you

Produce a poster or Power point all about you!

Include images, photos and the following information;

- 1. What is your pet hate?
- 2. What is your hidden talent?
- 3. Random fact about yourself?
- 4. What is your biggest achievement?
- 5. What is your guilty pleasure?
- Include your goals;
  - - 2 short term
  - - 2 long term
- Include a quote and picture from someone that you look up to. This could be a famous person, a public figure, friend or family.

See an example on the next page.



# An insight to me...Dan

## 5 QUESTIONS...

### 1. What is your pet hate?

People not being mindful of others.

### 2. What is your hidden talent?

I can eat peanut butter with/ on everything!

### 3. Random fact about yourself?

I finished 4<sup>th</sup> in my age group at the 'GB SUP National Series 2019'.

### 4. What is your biggest achievement?

Completing my CertEd in Post Compulsory Education

### 5. What is your guilty pleasure?

Watching surf movies and eating a ton of chocolate and nachos.



## Short term goals

1. To complete my level 3 'Coaching in the workplace'
2. To shape and glass a surfboard

## Long term goals

1. To swim around St.Marys
2. To paddle around the I.O.W



Make sure your worst enemy  
doesn't live between your two ears.

— Laird Hamilton —





## Glossary

### A:

**Adaptive Cruise control** - An automated vehicle speed management system that can identify traffic ahead and alters the car's speed accordingly. This could also be referred to as 'intelligent cruise control'.

**Airbag** - Inflatable cushioning designed to release in the event of a collision. Once rapidly inflated, they protect passengers from collision with the hard surfaces on the inside of the vehicle. They are usually be found in the dashboard and in pillars or doors.

**Antilock braking system** - An automatic system that prevents any of the wheels from locking during an emergency brake, as well as helping to improve steering and minimise stopping distances.

**Appreciation** - The opposite of 'depreciation'; this is where a car's value increases over time. This is likely to be mentioned in relation to vintage models.

**Automatic transmission** - As opposed to manual transmission, A/T is a gearbox that can shift through gears automatically. Fully A/T cars will not come with a manual clutch or gearstick at all.

**Aux** - Refers to 'auxiliary'. This is usually used to refer to an audio connection; as a type of input jack that can connect phones, tablets and other devices directly to the car's inbuilt audio systems.

**AWD** - All-wheel drive. This means that power is sent to all of the wheels of the car. AWD cars can either be permanent, where power will always be sent to each and every wheel, or switchable. The latter means that power is primarily fed to two wheels, but can be fed to all four when a slip is detected. Some manufacturers refer to this as 4x4, or 4WD.

### B:

**BHP** - Brake horsepower. This is the standard unit measurement of the power of an engine. Usually, the higher a car's BHP is, the higher its top speed and the faster its acceleration. The unit refers to an engine's 'raw' horsepower output before frictional losses occur.

### C:

**Cabriolet** - A cabriolet is a traditional name for any vehicle that is fitted with a folding roof. Often, manufacturers will use this to refer to any soft-top or folding-top edition of their Coupé models, while others use the term 'Convertible'.

**Coupé** - Any two-door vehicle that has a fixed roof. This body type is often characterised by low height and steeply-angled, sporty silhouettes.

**Crossover** - A particular type of SUV built on a specific platform type. While SUVs use a truck-style chassis, that used in a crossover is based on that of a standard car. This makes them a 'unibody' structure, where the body and frame are in one piece.

**Cruise control** - An automatic system that helps control the car's speed, keeping it at a constant. Most will allow the driver to set a particular speed, and then bring the car to that speed and cruise.

**Cut-and-shut** - These are damaged cars that have been illegally put back together, often by fusing parts of different vehicles to form one.

**D:**

**Dampers** - A key component of a car's suspension system. Dampers, also known as 'shock absorbers', take the impact of the car rising and falling, helping to balance it out.

**Depreciation** - Depreciation refers to the percentage rate at which a vehicle's value falls over a given timeframe. All cars are victim to this over the course of their life, and it's particularly significant during a car's first three years on the road.

**DPF** - A Diesel particulate filter; this traps any particulates in a diesel car's exhaust, which are then burned off.

**Dry weight** - This refers to the weight of a car, entirely free of occupants, cargo, fuel, oil and water. In other words, purely the weight of the components when assembled.

**DVLA** - The Driver Vehicle Licencing Agency (DVLA) is the UK government department responsible for recording the names of drivers and their vehicle registration details throughout the whole of the UK. They also issue drivers licences and sell personalised number plates.

**E:**

**Electronic stability control** - To help combat understeer and oversteer, as well as improve safety, this electronic program individually applies the brake to a particular wheel if it detects a loss of steering. It may also be referred to as 'Dynamic stability control'.

**E-REV** - Extended-Range Electric vehicle. A recent development in the industry, this type of car uses an electric motor, but is also able to use an internal combustion engine to generate power, keeping a minimum level of charge in the battery whenever it gets low. These vehicles help alleviate drivers' worries about running out of power in electric car.

**Estate** - An elongated car body type that features an extended space behind the rear seats, usually accessed by a boot door.

**EV** - An electric vehicle. This refers to any car that's largely powered by an electric motor. This can cover everything from E-REVs to Hybrids.

**F:**

**Finance package** - Arrangements and contracts offered by dealerships, allowing you defer or spread the cost of a car. With a range of options available, they provide customers with a range of options, allowing them to trade-in vehicles come the end of an agreement, or pay a balloon payment to take full ownership.

**FSH** - Full service history. This refers to a car that has a full log of regular maintenance, and had received annual service stamps from approved outlets.

**Fuel injection** - This is a system where by atomised fuel is applied directly to the combustion chamber of each cylinder in a car's engine.

**FWD** - Front wheel drive. This is where engine power is applied to the front wheels of the car only.

**G:**

**Gross weight** - The total weight of a given car, plus its maximum load of occupants and cargo that it can safely hold.

**GT** - Grand Tourer. A category of car that is specially engineered for long-distance driving. Often, these will luxury and super-high performance vehicles.

**H:**

**Hatchback** - This is a popular car body type, defined by a boot door that covers almost all of the car's rear side and swings upward for access. This makes them easily accessible, thus this body type is popular with families.

**HP** - Horsepower. This is a standard unit measurement of an engine's work rate. It gives you some idea of how rapidly a model of car can overcome issues such as weight and drag when on the move, and is calculated by multiplying torque by speed.

**HPI Check** - A service that provides extensive history checking for used models. It will outline whether the car is damaged, written-off, clocked or stolen. Anyone looking to buy a used vehicle should strongly consider a HPI check before purchasing.

**Hybrid** - Any vehicle which is powered by both a fuel engine and an electric motor. Many hybrids will jump between the two 'modes' when driving conditions are best suited to that particular form of power.

**I:**

**Immobiliser** - This is an electronic safety device fitted into your car that prevents the engine from turning on unless the correct key is used. They are usually fitted into all new cars and lower the risks of vehicle theft.

**Institute of Advanced Motoring** - The Institute of Advanced Motoring (IAM) is the UK's largest road safety charity whom specialise in promoting safe driving and riding skills.

**Insurance group** - Taking into account their value, part costs, repair times and overall safety, the ABI (association of British Insurers) categorises all vehicles, numbering them between 1 and 50. Lower groups will have a history of claims for smaller amounts less frequently, while higher groups will see larger claims more frequently. This means that the lower a car's insurance group, the lower its insurance premium is likely to be.

**J:**

**Jacked-up** - Refers to a type of vehicle that is raised high-up off the ground by its suspension.

## **K:**

**Kerb weight** - This is the weight of a car, or any given model; with fuel, oil and water inside but without any passengers or cargo.

## **L:**

**LED** - Light Emitting Diode. Using much less power than a standard filament bulb, this light source is now widely used across many models and manufacturers. You are likely to see LEDs used in your low-beam headlights, brake lights and indicators.

**List price** - The cost of a car as it is driven off the forecourt, before any depreciation has occurred. It takes into account the factory cost of the car, plus any additional fees including VAT and delivery. The list price is the theoretical maximum a customer would pay for a car from a dealership.

**LWB** - Long Wheelbase. This is an extended version of an existing vehicle chassis; often represented as a variant of some luxury saloons.

## **M:**

**Marque** - The make or brand of a vehicle. This might be different from its actual manufacturer name; for example, MINI is a brand owned and manufactured by BMW. However, BMW are responsible for the production of MINI cars, their 'marque' remains as MINI.

**Milometer** - A device fitted in a car's dashboard to count the total number of miles the car has driven. It is illegal to tamper with, or change the number displayed on a milometer; this is known as 'clocking'.

**Modifications** - Changes that have been made to the bodywork, engine, wheels and other parts of your car from its original factory state.

**Monocoque** - The structure type of most modern cars. It refers to a set up whereby the body itself supports the car's structural load, as opposed to relying on a different chassis.

**MPG** - Miles per gallon. This is the number of miles a car can travel for every gallon of fuel it consumes. Given that it varies depending on driving conditions, it's usually expressed in the form of urban (city driving), rural (country driving) and combined (a bit of both).

## **N:**

**Nearly new car** - A car that is returned to market after only a year or two's ownership. The worst of its depreciation will already have occurred, however this will still be a fairly new model, so can be an attractive proposition for buyers.

**New car** - A car made-to-order from the dealership by a customer. If you buy a new car, you will be its first owner.

## **P:**

**PHEV** - Plug-in Hybrid Electric Vehicle. This refers to a type of car with a particularly good range of electric power, owing to a large propulsion battery,

**Points** - Points are penalties collected on your license for violations to driving laws such as speeding or drink driving.

**Power steering** - Any form of steering that is assisted by hydraulic or electrical motors.

**PS** - An alternative measure of engine power to BHP, largely used in Europe.

**R:**

**Range** - The distance any given electric vehicle can travel, from full charge, before it would run out and require charging again.

**Road tax band** - This is a grouping system which specifies how much road tax (VED) must be paid on a particular model. These are based on CO2 emissions.

**RWD** - Rear wheel drive. Where the power is sent to the rear wheels only.

**S:**

**Saloon** - A distinct car body type that comprises of three separate sections. The front section consists of the bonnet, engine and front wheels, with a central compartment for passengers and a rear section for cargo. This is otherwise known as a 'three-box'.

**Segment** - Groupings for car models that outline size and shape. These range from city cars and superminis to luxury cars and SUVs.

**SORN** - A Statutory Off-Road Notification (SORN) is when you register a vehicle that you no longer use on the roads to the DVLA in exchange for a redemption from vehicle tax. It also means that you are not legally required to insure the vehicle.

**SUV** - Sports Utility Vehicle. These refers to a tall and largely-sized vehicle with various levels of off-road capability. Many will have four-wheel drive, as well as particularly powerful engines. They are distinct from crossover SUVs in that they're built on a platform akin to a truck.

**T:**

**Torque** - The twisting or turning force that is generated by a motor. It is often shown in Newton Metres (NM) in the form of 'number of revolutions per minute'. It should give you some indication of how fast power can be sent to the wheels, and therefore has implications for acceleration.

**Transmission** - The type of gearbox a car is fitted with. This can be either manual, automatic or semi-automatic.

**Trim** - This is the specification of any given model. Models will offer various trims that could specify any number of interior, exterior and component changes. They usually exclude the engine selection however; this is usually specified separately.

**U:**

**Used car** - A used car is any vehicle not made-to-order, or purchased directly from the manufacturer through a dealership. It will have had a previous owner, or several owners, before being resold privately or through a dealership.

**V:**

**VIN** - Vehicle Identification Number. This is a unique number that is designated to each and every vehicle during manufacturing. This is then used to keep record and identify vehicles, allowing their full history to be checked.

**W:**

**Wheelbase** - This is the distance between the two middle points of the front and back wheels.

**Written-off** - When your car is involved in an accident and the cost to repair it is higher than the cost to replace it, it is known as a write off. In Your insurer will pay you for the cost of a new car and usually keeps the written off vehicle.



## Main sites at:

Lansdowne, Meyrick Road,  
Bournemouth, BH14 0LS

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