



Welcome to the Automotive and Marine Engineering Department



Activity Starter Pack

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We are 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 marine@bpc.ac.uk

Wellbeing: 01202 205242

Safeguarding: 07714851103 (Fulcrum & NR) 07774974781 (Lansdown & APP)

Student finance: 01202205660

WPO: Edit Laczó - 01202205197 laczoe2@bpc.ac.uk

Curriculum Admin: Stephanie Wilcocks - 01202205622 - willcockss@bpc.ac.uk

IT: 01202205566 Option 1

Careers advise: 01202205312

The Course Overview

Name: Level 2 Marine Engineering (C&G Level 2 Certificate in Engineering)

Level : 2

Awarding Body: City and Guilds

Progression: Level 3, Apprenticeship or employment.

Units: Units are graded Pass, Merit and Distinction.

Below is the curriculum outline:

Units	Description
Unit 201 Working in Engineering	Health and safety Communication methods Engineering drawings and specifications Working in engineering 1-hour multi choice online exam.
Unit 202 Engineering principles	Engineering materials Material properties Engineering maths and science 1-hour multi choice online exam.
Unit 208 Maintenance Principles	Preparation for maintenance activity Selecting working method and tools Dismantling and assembly techniques 1-hour short answer written exam
Unit 210 Maintenance of mechanical devices	Prepare for route maintenance activities Fault finding techniques Assembly and disassembly of mechanical devices Short answer written exam and practical assessment
Unit 223 Wiring and testing of electrical circuits	Prepare for wiring activity Carry out wiring activity test and fault find circuits Short answer written exam and practical assessment

Engineering 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 Engineering 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:

Health & Safety

- Flirting with Disaster - <https://www.youtube.com/watch?v=WavEcAsI2AY>
- Machine Operation and Maintenance - https://www.youtube.com/watch?v=hiFL-Qr5xl0&list=PLMNR-rOEMXB8n_AmBX70MoAqeKkoyHSVU&index=7
- Maintenance of Machine Safety Guard - https://www.youtube.com/watch?v=n51R8sYiz54&list=PLMNR-rOEMXB8n_AmBX70MoAqeKkoyHSVU&index=5

Fire Safety

- Fire Safety Video - <https://www.youtube.com/watch?v=ult6Biaf7oM&list=PLMNR-rOEMXB9xY3zO72s72MtcedFjQiUy&index=3&t=7s>
- How not to use a fire extinguisher - https://www.youtube.com/watch?v=IIwResK9VBc&list=PLMNR-rOEMXB8n_AmBX70MoAqeKkoyHSVU&index=18&t=0s

Tools & Equipment

- Engineers tools list - <https://www.youtube.com/watch?v=htQqkU0oBwA>
- Basic Engineering Tools- <https://www.youtube.com/watch?v=1H63--50hr4>

Materials

Create a Poster outlining all the different types of materials there are!

Materials are widely used in Engineering and come in different shapes, colours, smells and properties.

Can you find out what the different types of materials are and list examples. Use the following link to support you: <https://www.thewarren.org/ALevelRevision/engineering/Materialclasses.html>

Include description and of course pictures!

Toolbox

Begin building a list of tools and equipment you think a Marine Engineer will need. 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;

- What is your pet hate?
- What is your hidden talent?
- Random fact about yourself?
- What is your biggest achievement?
- 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.

Course reference material

Course Specification: <https://www.cityandguilds.com/qualifications-and-apprenticeships/engineering/mechanical/2850-engineering#tab=documents>

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 4th 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

Assembling: A process done by welding, binding with adhesives and bending in the form of a crimped seam

Base metal: The metal to be welded or cut

Bending: A process done by hammering or via press brakes

Blanking: A part is cut out of the sheet metal, and the material around the part is discarded

Brittle: Materials that have a tendency to break easily or suddenly without stretching or bending first.

CAD design: An acronym for computer-aided design

Ceramics: Ceramics are not shiny unless glazed, hard, often brittle, heavy, can be any colour (often white, pale brown to dark brown), cold to the touch.

CNC cutters: An acronym for computer numerical computer cutters; the automation of machine tools that are operated by precisely programmed commands encoded on a computer instead of operated manually by hand wheels or levers

Conductivity: How well a material conducts heat and electricity.

Corrosion resistance: The ability to withstand environmental attack and decay.

Cutting: A process done by sawing, shearing, or chiselling with manual and power tools, or torching with hand-held plasma torches using CNC cutters like lasers

Cutting torches: A tool that is capable of cutting large sections of sheet metal with little effort

Density: Density is mass per unit volume. The unit of density is the Kg per metre cubed.

Die cutting: A process that cuts metal pieces without the formation of chips or the use of burning or melting; also known as shearing

Ductility: The ability to be pulled into a thin wire or threads. Good examples are gold, copper and brass.

Elastics: The ability of a material to return to its original shape after a force has been applied and removed.

Fab shops: An abbreviation for fabrication shops

Flexibility: The ability to cope with bending forces without breaking.

Hardness: A measure of how easily a material can be scratched or dented.

Malleability: The ability to shape a material by applying pressure or a force. Good examples are lead, gold and copper.

Metal punching: When metal fabrication equipment punches holes, louvers or a predetermined shape out of sheet metal

Metals: Metals are shiny, hard, heavy, good conductors, can be polished and are cold to the touch.

Milling: The process of using rotary cutters to remove material from a metal piece advancing in a direction at an angle with the axis of a tool

Oxy-acetylene torch: A tool used to straighten significantly warped steel in a slow, linear fashion

Plastics: Materials that change shape permanently when small forces are applied. Plasticine and clay are good examples.

Roll forming: A constant bending process in which sheet metal, coil, bar or strips of metal pass through rolls that form the metal

Sheet metal fabrication: The process of cutting, shearing, rolling, bending and punching sheet metal to fabricate parts and pieces

Stamping: A high production process in which single or multiple punches, bends and embossing are performed at one time or in a progressive die

Stiffness: The ability to resist bending.

Strength: The ability of a material to withstand forces.

Tough: Materials that absorb forces - the opposite to brittle materials.

Welding: The main focus of sheet metal fabrication; a process of using a blow torch or electric arc to join together two or more metal pieces or parts by heating the surfaces of the parts to the point of melting then uniting them by pressing, hammering or other techniques