

## Produce engraved surfaces using advanced techniques

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### Overview

This standard covers the skills to use different styles of engraving to produce a decorative surface including the use of advanced techniques such as pantograph, photo-etching, laser cutting and CNC machine engraving. You will apply these advanced techniques on to a range of surfaces, for example, plated work, carved work, lettering, inside curves, multi-material combinations and repairs and restorations.

In producing engraved products, you will be required to work to instructions and to use a range of hand tools and techniques appropriate to the type of material being used and the type and style of engraving being executed.

You will be expected to take personal responsibility for your actions and for the quality and accuracy of the work carried out. During, and on completion of, the engraving operations you will be expected to check the quality of your work using visual inspection guidelines, appropriate to the aspects being checked and the specifications required. You will need to be able to recognise any defects, determine the appropriate action to rectify them, and ensure that the finished work meets the required specification.

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### Performance criteria

#### *You must be able to:*

1. research the different styles of engraving to produce decorative surfaces in line with project needs
2. complete a wide range of advanced **engraving** using a variety of hand tools in line with project needs
3. engrave work made in a range **\*of \*materials** in line with industry best practice
4. engrave work covering a range **\*of advanced \*techniques** in line with industry best practice
5. complete initial checks that the completed engraving is dimensionally accurate and proportionally correct in line with the needs of the project
6. check the work for defects in line with the needs of the project
7. take action to rectify any defects detected in line with industry best practice
8. complete the work to the given specification in line with workplace instructions

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## Knowledge and understanding

*You need to know and understand:*

1. safety precautions to be taken when producing advanced engravings
2. mathematical formulae and calculations
3. how to make, harden, temper and sharpen engraving tools
4. how to lay out and cut a variety of letter types and heraldic insignia
5. carving techniques and reverse cutting
6. how to check work pieces for dimensional accuracy
7. how to combine multi-metals in a base material for overlay and inlay
8. etching techniques
9. uses of machine and computer engraving and 3D carving
10. uses of complex holding devices
11. the preparation of templates by pattern making, hand engraving and lathe work
12. surface treatments
13. the sequence of application to remove surface marks
14. how to check that the advanced engraving meets the needs of the specification
15. best practice in advanced engraving within chosen jewellery industry
16. the importance of following the given specification and timescales
17. common defects and ways to rectify these

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**Scope/range**

1. **Engraving** can include on the following:

1. plated work
2. carved work
3. lettering
4. inside curves
5. multi-material combinations
6. repair and restoration

2. **Materials** such as:

1. silver
2. gold
3. platinum
4. palladium

3. Types of **techniques**:

1. pantograph
2. photo-etching
3. laser cutting
4. CNC machine engraving

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