

## **SUBJECT NAME: PRACTICAL METALWORKING**

### **AWARD RECEIVED NATIONAL 5 or NATIONAL 4**

The National 5 Practical Metalworking course provides opportunities for you to gain a range of theoretical and practical metalworking skills.

The course enables you to develop:

- metalworking techniques
- measuring and marking out metal sections and sheet materials
- safe working practices in workshop environments
- practical creativity and problem-solving skills
- sustainability issues in a practical metalworking context

### **ENTRY LEVEL – What do I need to do it?**

The National 4/5 course will allow you to further enhance your knowledge and abilities within the practical technologies, building on the metalworking skills you may have developed in your S2-3 Practical & Vocational Skills. Ideally you will have completed the National 5 Practical woodworking course, however, those students who have not completed at this level, but who are keen to explore and develop their metalworking practical skills may be able to join the course following discussion with Principal Teacher of CDT.

### **COURSE CONTENT – What will I learn?**

The Practical Metalworking course develops skills in three main areas. Each area provides opportunities for you to demonstrate safe working practices and good practice in recycling and sustainability within the workshop environment. Each area of study covers a different set of metalworking skills. All areas include skills and associated knowledge in reading and interpreting working drawings, measuring and marking out, along with cutting and jointing techniques.

#### ***Bench skills***

In this area, you will develop skills, knowledge and understanding in the use of metalworking hand tools, bench-fitting work, routine sheet-metal work, measuring and marking out, involving complex features. You will develop their ability to read and use drawings and diagrams depicting both familiar and unfamiliar metalwork tasks.

#### ***Machine processes***

This area allows you to develop skills, knowledge and understanding in the use of metalworking machines, equipment and related processes. You will further develop your knowledge of materials and skills in measuring and marking out.

#### ***Fabrication and thermal joining***

Here you will develop skills, knowledge and understanding in fabrication, forming and joining of metalwork components with some complex features. You will develop skills in thermal joining techniques including, spot-welding, arc-welding and brazing.

### **TEACHING METHODS – What will I do?**

The course is by its nature highly practical, exploratory and experiential. and you will spend the majority of your time in the workshop developing your practical skills through a number of tasks. Other teaching methods may include:

- Class discussion
- Written tasks
- Group work

## ASSESSMENT

At National 5 level, you will be expected to complete and submit a range of practice/test pieces and 'unit project' for each area of study throughout the year. You will also undertake a class tests for each area in order to inform your next steps for learning as you progress through the course.

Assessment tasks will likely be drawn from one or more of the following practical models\*:

**Bench skills** – Safely use a variety of hand tools to manufacture a tool tray and centre finder.

**Machine processes** – Manufacture an adjustable spanner and components of a small vice using the metal lathe, demonstrating safe working practices.

**Fabrication and thermal joining** – Complete the manufacture the small vice, demonstrating independence and safe working practices throughout.

At the end of the National 5 course you will complete a practical activity (70 marks) which requires you to apply skills and knowledge developed during the course to produce a finished product to a given standard and specification, this element will be both externally set, but internally marked. You will also sit an externally set and marked question paper (60 marks, scaled to 30 marks for certification)

National 4 students must also complete a range of test pieces along with a practical model to generate evidence for each unit in order to gain the course award at this level. At National 4 level you will complete an Added Value Unit requiring you to produce a finished product to an appropriate standard for National 4.

All students will be encouraged to work towards the National 5 qualification, with an option to complete the course at National 4 level if it becomes evident that this is a more appropriate level of study.

## HOMEWORK

You will be expected to completed homework tasks to consolidate your knowledge of metalworking techniques, tools and materials, and safe working practices. Due to the practical nature of the course, it is expected that students who are absent from workshop periods attend catch-up sessions that the department will arrange to allow you to complete this work should you require it.

## PROGRESSION IN THE SENIOR PHASE

Success at National 4 will allow you to progress to the National 5 Practical Metalworking course. Students may also consider moving sideways to courses in National 4/5 Design & Manufacture and/or National 4 Construction Crafts.

## COURSE COSTS

The National 4/5 Practical Metalworking course has a cost of £20 associated with it contributing towards the cost of resistant materials consumed in the course.

*\*Note: Practical models are subject to change*