

# **Metalwork 9/10 - Course Outline**

## **OBJECTIVE:**

*The main objective of this course is to provide a combination of knowledge and hands-on skills that will be valuable throughout life and open doors to various career options. The course focuses on safety, measurement, theory, tools and equipment, and materials and processes, with an emphasis on the fabrication of metal-related products. Students will apply their acquired skills in designing and fabricating projects selected by the teacher and students. By the end of this course, students will be able to:*

- Safely use a variety of machines and tools specific to their projects.*
- Accurately measure using both the Metric and Imperial systems.*
- Sketch, plan, and draw a complete set of project plans as needed.*
- Calculate material costs using a Bill of Materials.*
- Identify various metal types by examining shape, thickness, and material type.*
- Gain self-confidence and experience working in an industrial setting.*

## **COURSE CONTENT:**

- a. Safety practices*
- b. Classifying metals*
- c. Understanding drawings*
- d. Measurement*
- e. Hand tools and machines*
- f. Brazing and welding*

## **COURSE COSTS:**

*As per the Surrey School District policy, there is no course fee for this class. Students will be provided with basic materials and supplies to meet the Ministry's Prescribed Learning Outcomes. However, these materials are very basic in nature. Students wishing to enhance their learning may purchase additional or alternate materials for their projects, either through the school at district discounted pricing or by bringing materials from home.*

## **SKILL BUILDING PROJECTS:**

*These projects are designed to help students become familiar with metal shop machines and processes. Students are expected to demonstrate the safe use of the following machines:*

*horizontal and vertical band saws, pedestal grinder, buffer, sand blaster, centrifugal casting machine, drill press, sheet metal machines, and various welders. Students will also use a variety of metalworking hand tools. The proposed projects include:*

- 1. STAINLESS STEEL PENCIL BOX**
- 2. STEEL STICK WELDED ROSE**
- 3. ALUMINUM BRASED LOG AND AXE**
- 4. STEEL GAS WELDED WALL ART**
- 5. STEEL RIVETED RUNNER**

## **ASSESSMENT**

*Students will be evaluated and graded using the following breakdown:*

### **A. Diagnostic Assessment**

- 1. Prior knowledge test – to assess what students already know and can do.*
- 2. Safety tests – students must score at least 95% to pass and begin working on their projects.*
- 3. Self-assessment – allows students to identify their skill gaps, revise their work, and track their progress.*

### **B. Formative Assessment (40 points)**

- 1. In-class work – for each PowerPoint presentation.*
- 2. Quizzes – administered at the end of each project.*

**IMPORTANT NOTE:** At the beginning of each activity, students will have the opportunity to earn higher marks by completing a review quiz on Kahoot. The first three students will each receive 1 bonus mark.

### **C. Summative Assessment (60 points)**

- 1. Projects – worth 12 points each.*

**IMPORTANT NOTE:** Points will be deducted for missing deadlines.

**Textbook:** Walker R. John, *Modern Metalworking*

## ***Shop Rules and Expectations***

- ***Food and Drinks:*** No food or drinks in the shops, but water in a bottle is allowed.
- ***Absences:*** Attendance for demonstrations, discussions, and performing skills is essential. Absences can contribute to failing the course.
- ***Shop Clean-up:*** Full participation in daily clean-up tasks is expected. Failing to participate may result in loss of project-building privileges.
- ***Projects:*** Any personal projects worked on in the shop must be approved before beginning, with all associated costs paid beforehand. Any modifications or additions to prescribed projects that increase costs must also be approved and paid for beforehand.
- ***Personal Electronics:*** Personal electronics with video displays can only be used with permission. Use for schoolwork is fine, but game playing is not allowed. Devices may be taken away if rules are not followed. Music players can be used, but only within shop rules.
- ***Vandalism:*** Vandalism of tools, tables, or floors will not be tolerated and will result in a phone call home and a referral to the office.

### ***Contact:***

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