TMJ 2O

Manufacturing Engineering Technology

Teacher	Mr. Pemberton scott.pemberton@ocdsb.ca Room 169, The Makerspace
Required Materials	Binder, lined paper, pen / pencil, **laptop*** *** HIGHLY recommended**
Course Enhancement Fee	**Total $25 + $5** $5 for Machining Projects (aluminum & drill rod) $5 for Camping Grill (welding stock) $15 for CNC plasma, 3D printing, & milling materials $5 for safety glasses **(may provide your own)**

Course Profile

This program is highly recommended for those considering **Engineering** and related **Skilled Trades**. This course introduces students to these professions by giving them an opportunity to design and fabricate products using a variety of processes, tools, and equipment. Students will learn about CAD design, CNC operations, properties and preparation of materials, and manufacturing techniques. Student projects will include fabrication projects involving machining and welding. Students will develop an awareness of environmental and societal issues related to manufacturing, and will learn about pathways leading to careers in the industry and related professions. **There is no prerequisite to this course.**

You **must** be enrolled in Manufacturing Engineering and / or Computer Engineering in order to participate in **First Robotics**. In grade 11 TMJ 3M, students complete a design & fabrication challenge as part of the **Engineer In Residence** program. In grade 12 TMJ 4M, students are given the opportunity to participate in a **Tetra Society** project (http://www.tetrasociety.org/). Following the grade 10 course, students can participate in our **Manufacturing Specialist High Skills Major**:
https://drive.google.com/file/d/14TMW_GlGA5GJDUuajYD2VOGuq23a8Crb/view?usp=sharing

Course Outline

CAD Design Unit - creating & interpreting orthographic drawings with standardized dimensions
Safety Unit - covers safe operating practices for required tools

Skills Units - machining (screwdriver project), welding (MIG basics and T-joints), 3D Printing / CNC Plasma Cutting / Welding Fabrication Project
Management & Design - 3 online courses
Summative - culminating task assigned at the end of the course (machined key ring)

Course Evaluation

Course evaluation is divided into 70% term work and 30% final summative task. Details of how the 70% term mark is derived are included below. For explanations of the Ministry expectations, please follow this link:

http://www.edu.gov.on.ca/eng/curriculum/secondary/teched910curr09.pdf

Tasks	**Ministry Expectations**										
	A1	A2	A3	B1	B2	B3	B4	C1	C2	D1	D2
Design Unit Test 1	✔	✔									
Design Unit Test 2	✔	✔									
Design Bonus Assignment	✔	✔									
Safety						✔				✔	
Machining Skills - Screwdriver			✔	✔	✔	✔	✔			✔	
Welding Skills			✔	✔	✔	✔	✔				
3D Printing / CNC Plasma / Welding Fabrication Project			✔	✔	✔	✔	✔			✔	
Fundamentals of Project Management	✔	✔		✔	✔			✔	✔	✔	✔
Introduction to Time Management	✔				✔						✔
Product Design	✔	✔	✔	✔	✔			✔	✔	✔	✔

When assigning new work, the evaluation rubric is provided at that time. Google Classroom is used extensively to assign and track various assignments.