

# **Canterbury High School**

Ottawa-Carleton District School Board

## **Technological Studies**

Semester II – 2010 / 11 – Course Outline

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<b>Course Title: Exploring Integrated Technologies</b>	<b>Grade Level: 9</b>
<b>Course Code: TIJ10</b>	<b>Credit Value: 1.0</b>
<b>Prerequisite: Open</b>	

Teachers: Mr. David Andrews , Michael Dearing

**Course Overview:** 110 hours

### **Exploring Integrated Technologies, Grade 9, Open (TIJ10)**

This course enables students to understand the technological and computer concepts they will need in order to design, develop, and build usable products or to deliver services, as well as to pursue further technological studies. Students will use the technological design process and a variety of tools and software to solve problems, complete projects, and strengthen their communication skills.

#### **Strands:**

##### **Theory and Foundation**

By the end of this course, students will:

- Demonstrate understanding of how to develop products or provide services to meet identified needs;
- Identify ways to communicate design and research ideas and solutions through a variety of media;
- Demonstrate understanding of how to evaluate project work in relation to identified specifications, using quality control procedures;
- Describe the scope of activities supporting by computer and information technology;
- Explain the fundamentals concepts underlying the creation of a computer program.

##### **Skill and Process**

By the end of the course, students will:

- Fabricate products or deliver services using a design process and a variety of tools and equipment;
- Share information locally and globally using communication tools such as email;
- Use a variety of software application for research, to solve problems, and to document the design process;
- Identify products techniques and materials to meet design specifications;
- Use correctly problem solving model, such as the scientific method or design making model, completing all the required steps.

##### **Impact and Consequences**

By the end of the course, students will:

- Apply safety standards when using materials, tools, and equipment;
- Describe the environmental effects of materials, processes, and resources;
- Demonstrate understanding of how developments in technologies influence people's lives;
- Identify technology – based careers and their educational requirements.

## **Units of Study:**

### **Unit Titles**

Unit One	Technology & Society & Drafting	22 hours
Unit Two	Transportation: Mousetrap vehicle	22 hours
Unit Three	Construction and Technological Design: Dream House	22 hours
Unit Four	Focus on Manufacturing: Bird Feeder	22 hours
Unit Five	Design Focus: Locker Organizer	22 hours

### **Unit Organization**

#### ***Unit 1: Technology, Society & Drafting***

Time: 22 hours

##### **Description**

This unit introduces students to the social and cultural implications of new technology; we also consider the role of women in technology and the moral and ethical implications of developing new technologies. We do a history of technological revolutions and consider the role of customer services.

In this unit students six plain figure drawings, three sets of orthographic drawings, and study the conventions for dimensioning non- cylindrical objects. We draw one and two point perspective drawings, and students design a safety poster.

#### ***Unit 2: Transportation: mousetrap vehicle***

Time: 22 hours

##### **Description**

The projects in this module introduces many aspects of transportation technology including vehicle propulsion aerodynamics design and drive rations. Students will design and produces a vehicle that is propelled by a mousetrap. Students will create sketches, dimension drawings, top front side drawings, they will construct and assemble the vehicle components, evaluate vehicle specifications and write a performances report.

#### ***Unit 3: Construction and Technological Design: Dream House***

Time: 22 hours

##### **Description**

What is your dream home like? Is it large and roomy or small and cozy? Is it in the country side or the heart of the city? The challenge is to research and design a home that is attractive comfortable and fictional. In this process students learn basic measuring skills sketching drawing, how to make a sale model safety procedures for working in a technical facility. Students also learn to brain storm and communicate design ideas and identify standard sizes of common architectural elements, and the basic use of universal architectural symbols.

#### ***Unit 4: Focus on Manufacturing: Bird Feeder***

Time: 22 hours

##### **Description**

When you wake up in the morning did you ever consider that each and every item that you can see and touch has been designed, engineered and manufactured for your use? In this unit you will discover the world of manufacturing, and create useful objects from a verity of materials. You will discover with manufacturing the

possibilities are endless. In this unit you will design and manufacture an innovative stylish and efficient bird feeder that will discourage pests, rodents, and predators. You will learn to document the steps in the design process, produce a technical report and a portfolio.

## ***Unit 5: Design Focus: locker Organizer***

**Time:** 22 hours

### **Description**

This unit challenges students to apply all that they have previously learned about the design process, use of tools and equipment, as well as safety. In this project you will design and build an efficient storage organizer for a typical school locker. Your locker organizer must incorporate three different types of materials.

### **Teaching/Learning Strategies**

The fundamental approach for teaching and learning is by providing a real-world, hands-on, project basis to the course in each unit. This course incorporates a variety of teaching/learning strategies, including student- and teacher-directed activities, individual learning activities, group work, and co-operative learning. The teacher should provide students at the beginning of each unit with the information, resources, and guidance necessary to complete each task safely and with maximum opportunity for success. Teachers provide students with opportunities to work both independently and in groups to perform the following tasks: problem solving, brainstorming, safely using hand and power tools, following various design processes, collecting information, report writing, assessing and evaluating projects, and making classroom presentations.

### **Assessment/Evaluation Techniques**

Methods of assessment and evaluation include a wide variety of approaches to enhance the learning environment. Assessment methods may include: performance assessments such as project deliverables and skill demonstrations; personal communication assessment such as instructional questions and answers, conferences, classroom discussions, journals, or log books; and standardized tests such as classroom tests or examinations. Self- and peer assessment assist the student by providing directions to improve performance. Assessment charts included in each activity provide the basis for teacher evaluation rubrics, student self-assessment, or team assessment tools.

Final summative assessment and evaluation should take the form of a research and presentation task that allows students to demonstrate their knowledge and understanding of the design process. Unit 5 includes activities that can be used as the summative task for evaluation purposes. The summative task may be supplemented by summative evaluation in the form of a test or exam.

### **Evaluation Summary:**

Term 1: 35%

Term 2: 35%

Summative project: 30%

Total : 100%