

HOLY TRINITY CATHOLIC SECONDARY SCHOOL COURSE OUTLINE



Exploring Technologies, Open, Grade 9

Course Code: TIJ10

Course Prerequisite:None

Course Description: 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 Education. Students use the technological design process and a variety of tools and software to solve problems, complete projects, and strengthen their communication skills. Upon completion of this course students will have had the opportunity to acquire many diverse technical skills and knowledge that may be applied to various career opportunities.

Catholic Graduate Expectations: The purpose of Technological Education in the Catholic faith community is to enable young adults to develop and develop their ability to find solutions and develop products that benefit others in a way that models gospel values. The focus of the curriculum is to enable students to become critical and innovative problem-solvers who question the use of resources and understand the implications of technological innovations. An emphasis on process as well as results ensures that students create products and provide services that recognize our God-given responsibility to respect the dignity and value of the individual and the protection of the environment.

Units of Study

Unit 1	Course Introduction / TIJ10 - Student responsibilities, required materials, class/shop routines, student dress code for technology classes, <i>safety</i> , assessment and evaluation.
Unit 2	Design Process - Measurement, design process, computer graphics, word processing, design layout, report writing.
Unit 3	Introduction to Construction - Wood Shelf, Hand tool, Various tools used in the manufacturing process of wood products.
Unit 4	Technological Design - Drafting principles, graph paper drawings, and introduction to Google SketchUp (Possibly an introduction to Auto-Cad depending on student interest and skill level) Grid transfers Isometric drawings Oblique drawings Orthographic projections
Unit 5	T.B.D at a later date based on student skill level and interest.
Unit 6	T.B.D at a later date based on student skill level and interest.
Unit 7	T.B.D at a later date based on student skill level and interest.
Unit 8	T.B.D at a later date based on student skill level and interest.
Unit 9	Co2 Cars - Aerodynamic, Lift, Velocity. Design and construct a Co2 car based on the knowledge taught throughout the unit.
Unit 10	Careers - identify careers in various technological fields, and describe the educational

Evaluation

70%	30%
Knowledge/Understanding	Culminating Task 15%
Thinking/Inquiry	
Communication	Exam 15%
Application	

Safe and Appropriate Use of Equipment and Facilities

Safety Passport

The purpose of the safety passport is to ensure that students are fully aware of all safety features on each piece of equipment in the technical facility prior to using them independently.

The general process is as follows:

1. When the teacher introduces a new piece of equipment (e.g., Bandsaw), students listen and record the date of the safety demonstration on their safety pass port sheet. Students prepare notes in their notebooks, the teacher than sign off a copy for the student demonstrating the student is capable of using that particular piece of equipment. During this lesson while the teacher demonstrates techniques for the safe operation of the machine and personal protective equipment (e.g., proper eye protection, secure loose hair, remove jewelery, protective clothing, etc.). This safety note is carefully recorded in each student's notebook along with the signed Safety passport. If any students are absent for the safety lesson, the teacher carefully notes it on the daily attendance and a make-up opportunity must be provided.
2. Students must demonstrate to the teacher that they have a thorough knowledge of the safety rules for the equipment and are able to demonstrate their competency on the equipment. Once the teacher has observed the required safe set-up and operation of the equipment by a student, the teacher signs off that portion of their safety passport.
3. Each student must complete a written test on the safe operation of the machine tool, outlining all safety features that must be observed. These individual machine tests are designed to complement any general facility safety rules.
4. Once the student has completed steps 1, 2, and 3, the teacher signs the final column of the student's safety passport indicating they are able to use that equipment. The teacher keeps the signed checklist on file. A summary document of all the various permissions may be created by the student and signed by the teacher (as permissions are earned).

Assessment Strategies and Evaluation Devices/Tools

This course is project-oriented, student-driven, and involves creative solutions to open-ended problems. Performance can be assessed through analysis of completion of established criteria and by the student's own design ideas. Design idea's can be evaluated through verbal testing, written design reports, formal student presentations, and daily logs and or journals. All students participate in the activities and are evaluated on individual efforts, and abilities even while working groups.

Assessment Strategies

- composition of technical reports and Rubric
- composition of design proposals
- research reports (including photos of product in use);
- drawings, illustrations, and blueprints;
- finished models, prototypes, test models, and products;
- presentations;

Evaluation Devices/Tools

- Development of individual portfolios.
- Rubrics will be used for prototype, models, to ensure all criteria is met.
- Written tests to reinforce theoretical concepts.

Late Assignment Policy /Missed Test Policy:

Late assignments will be handled according to the policy at Holy Trinity Catholic Secondary School Student Handbook. Missed tests, due to illness, appointments, or school functions will be written the day of return unless there are mitigating circumstances.

Fostering Inclusiveness

Providing a safe learning environment for everyone is a key aspect to the success of this class. Similar to many engineering firms students will participate and work together on problem solving techniques, and be asked to work in various group settings. Sharing project ideas that will enable all students to participate in classroom discussions.

Accommodations

- Provide individual and small-group explanatory sessions.
 - Allow for students of differing abilities to be paired.
 - Provide information sheets to assist in the research process.
 - Consult the student's IEP to determine areas of need.
 - Pair students with little or no knowledge in computer operations with students who have expertise.

Allow additional time if needed

- Please refer to the Catholic District School Board Of Eastern Ontario website www.cdsbeo.on.ca or course calendar for complete course outlines, the school plagiarism policy, dress code policy, and late assignment policy.

Course Resources Required

Human Resources Development Canada National Occupational Classification database
(Ontario Building Codes)

www.hrdc-drhc.ca/noc

Wikipedia-Various definitions and Understandings

www.wikipedia

Tutorialized - various tutorials for learning design related software

www.tutorialized.com

Ontario Prospects, (career explorations)

www.edu.gov.on.ca

Popular Science – latest innovations in industrial and architectural design

www.popularscience.com

Popular Mechanics – latest information of innovations and inventions

www.popularmechanics.com

Carleton University School of Industrial Design – information on industrial design curriculum

www.id.carleton.ca

How Things Work

www.howthingswork.com

You Tube - Examples of various architectural wonders

www.youtube.com

- Discovery Channel Extreme Engineering

For a detailed course description of this course, please visit
<https://www.edu.gov.on.ca/eng/curriculum/secondary>