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## Earl Haig

SecondarySchool

### TDM3M

##### Technological Design

**Architectural Drafting – emphasis course**

# **Course Code**

**Evaluation Profile & Outline**

**Course Description/Rationale/Overview:**

This course provides students with opportunities to apply the principles of technological design to challenges in architecture, and environmental services. Students are introduced to the fundamentals of architecture design where concepts are examined and analyzed. In addition to drawing conventions such as line weights, line types, hatching and various templates. Students will be introduced to solid modelling and detailed drawings. Sketching skills will be developed while completing simple design concepts for small scale residential projects. Various systems of a simple residence are studied including materials, construction, and the components of each system. Emphasis will be on designing within a digital environment - CAD (computer aided drafting) using AutoCAD / Autodesk Architectural Desktop. Projects may include a set of working and presentation drawings of projects. Student will build on the skills acquired in grade eleven and develop design skills required for postsecondary studies in, architecture or other related fields

**Assessment and Evaluation Strategies**

* Quizzes, Tests, and Exams: Students will do both practical (hands on) and written tests.

Projects and Assignments: There will be several small assignments and at least one large assignment.

**Class Requirements:**

Notebook

Folder for portfolios

Drawing supplies, 2h and 4h pencil

Base materials for all projects supplied

Additional materials may be purchased

This course is a project driven, problem solving course, with an emphasis on designing in a digital environment.

Resource text;

 1 - Mastering AutoCAD 2018

 2 - Autodesk Inventor Basics

**Late and or Missed Evaluation**

Late work must be completed to achieve the requirements of the course. Missed Test must be completed on the first day of return to school.

**Subject-Specific/Department Information**

**Course Requirements/Department Policies**

Late Assignments

Late assignments must be accompanied with a note signed by a parent or guardian

stating the reason for tardiness of the assignment. The date must list the due date

of the assignment and the actual date of submission.

*If an assignment is handed in after it has been taken up/handed back, the student*

*may not receive a mark for it.*

Missed Tests

It is the student’s responsibility to make arrangements, ahead of time, for any

tests/quizzes that are missed. If a student misses a test/quiz for an unforeseen

reason such as illness, the student must bring a note signed by a parent or

guardian and be prepared to write the test/quiz immediately upon return to school

**Learning Skills\***

**Responsibility** – meets deadlines; takes responsibility for own behaviour

**Organization** – establishes priorities and manages time; uses information, technology and resources top complete tasks time management

**Independent Work** – follows instruction with minimal supervision; uses class time appropriately to complete tasks

**Collaboration** – accepts an equitable share of work in a group; builds healthy peer relationships; works with others to achieve group goals

**Initiative** – looks for opportunities for learning; demonstrates curiosity; approaches new tasks with a positive attitude

**Self-regulation** – sets own goals and monitors own progress; seeks assistance with needed; makes an effort with responding to challenges

###### Final Mark

**Term mark 70%**

**Final Summative Evaluation 30%**

**Achievement Categories and Weighting**

Assignments 20%, Projects 50%, Tests 30%

Knowledge and Understanding 15%

Thinking and Inquiry 20%

Communications 25%

Application 40%

\*From: Ontario Ministry of Education. *Growing Success: Assessment, Evaluation, and Reporting in Ontario Schools*. Toronto: Ministry of Education, 2010, 11.

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 **Course Outline**

**Safety** – Explain, analyze and evaluate:

 **Shop** - basic hand tools used for model making and safe practices using such tools. MSDS.

 **Site** safety (job related) - boots, hard hats, safety glasses, situational awareness on site. Environmental conditions and materials, equipment and machinery will be studied.

Materials – dimensional lumber, manufactured boards, glass, masonry and structural steel members. - 1.25 hours

**Design process** – Using the cyclical process, students will analyze the flow of the design process and develop solutions to situations using sketches, annotations and computer drawings - 10 hours

**Introduction to drafting** – drafting conventions and the tool palette in AutoCAD and Autodesk Inventor

 – Setting up the drafting environment, line types, properties, templates, mass and space elements, walls, doors, windows, roofs and floors. ***Emphasis will be on mass elements, and space and space boundary objects.*** Sections and detail elements will be introduced. Basic building codes – frontage, setbacks, R value, joist and rafter span, foundations will be addressed. – 35 hours

**Project Design** – Students will utilize skills acquired to design a simple multi space residential building – walls, doors, windows, roof and floor with associated properties will be incorporated in their design. This project can take the form a design challenge where the design process is used to formulate a solution / develop a product. - 35hours

**Printing** – Paper space vs model space – producing a set of presentation drawings and or working drawings - 6 hours

**Digital Model Making** – Students will construct a scale model of their project – using in a simulated environment using Autodesk Inventor. - 10 hours

**Culminating Projects**  - 13 hours