Technological Design- TDJ20

Course Information & Evaluation

This course provides students with opportunities to apply a design process to meet a variety of technological challenges. Students will research projects, create designs, build models and/or prototypes, and assess products and/or processes using appropriate tools, techniques, and strategies. Student projects may include designs for homes, vehicles, bridges, robotic arms, clothing, or other products. Students will develop an awareness of environmental and societal issues related to technological design, and will learn about secondary and postsecondary education and training leading to careers in the field.

PREREQUISITE: none

Overall Expectations

Fundamentals

A1. identify and describe the purpose, scope, and steps of a design process;

A2. identify and describe tools, strategies, and skills needed for project research, planning, and organization;

A3. demonstrate an understanding of how design ideas are represented graphically;

A4. explain the purpose of building models and prototypes, and identify tools, materials, and methods for building and testing them;

A5. demonstrate an understanding of communications methods used in the design process.

Skills

B1. research, plan, and organize projects, using a design process and appropriate methods and tools;

B2. apply appropriate methods for generating and graphically representing design ideas and solutions;

B3. create and test models using a variety of techniques, tools, and materials;

B4. use suitable communication methods throughout the design process.

Technology, The Environment & Society

C1. demonstrate an understanding of environmentally responsible practices, and apply them throughout the technological design process;

C2. describe how society influences technological innovation and how technology affects society.

Professional Practice & Careers

D1. apply appropriate health, safety, and environmental practices throughout the design process;

D2. identify careers related to technological design, and the education and training required for them.

D2.6 develop and/or select pieces of work and other materials that provide evidence of their skills and achievements in technological design, for inclusion in a portfolio (e.g., work logs, skills checklist, sketches, drawings, photographs of models and prototypes, virtual models)

Strands / Units Topics

1. Drafting - 2D & 3D tips and techniques
2. CAD - Drawing and Modelling
3. Shop Procedure and Safety
4. Power Machine Uses and Safety
5. CNC Router Design & machining
6. Structural Principles, Model, Design & Construction - Catapult
7. Competition Challenge, Model, Design & Construction – Cantilever Bridge
9. Summative (x2)

Course Text and Reference Resources

Integrated Technologies by Sergio Borghesi et al, Pearson Education Canada 2004, Online resources, and Technical resources

Assessment & Evaluation Policy

Refer to the attached SWL Assessment and Evaluation Policy April 2011

Attendance Policy

Students are responsible for catching up on class notes and completing any assignments or tasks involving equipment for which they were absent. ***It is up to the students to ask the instructor what they missed when they return***. Parents will be contacted for any student who skips class. After three such skips, the student will be referred to the Vice-Principal.

70% Formative Evaluation

Student evaluation is based on the Overall Expectation found in the Ontario Curriculum using various forms, such as, but, not limited to, quizzes, tests, assignments, projects, presentations, safety practices, and activities.

30% Summative Evaluation

Each student will complete <u>two</u> summative projects representing 30% of their mark.

Certain forms of these summative evaluations (exams, final tests, performance based tasks, etc.) are time sensitive. This means they must be completed at and within a specific time. Students <u>must</u> be present for these summative evaluations. Any absence will result in a mark of zero, unless validated by an official certificate. (ex. Medical Certificate). Students and parents will be informed well in advance of summative evaluation dates.

Classroom Expectations

1. Students are expected to be willing and active participants in all course activities. This includes completing all assignments both on time and with sufficient effort, and honoring all of their commitments.

2. Students will contribute to a positive learning environment by: • practicing safe work habits at all times • being respectful to others and respecting their property • treating all equipment with care and ensuring proper knowledge of its operation • reporting unsafe or hazardous situations to the instructor • reporting software or equipment problems to the instructor • cleaning up their workspace and putting everything away before they leave the class*** Electronic storage devices, headphones and open toed shoes cannot be used in the shop areas * No food or drink is permitted in any of the equipment areas.**