



Course Outline



Course Information

Course Title: Introduction to Mechanical Engineering (Essentials 1)

Course Code: DEA20S

Year: 2026/2027

Location: Crocus Plains Regional Secondary School, Room 211

Instructor Information

Instructor Name: Mr. Jason Klimack

Email: Klimack.Jason@bsd.ca

Office Phone: 1.204.729.0309

Communication: Best method of communication is through email.

Course Description

Overview: Essentials 1 is intended for students wishing to explore mechanical design drafting. This course covers basic mechanical design tools and gets students to begin looking at the design of objects to understand how they are intended to function.

Prerequisites: None.

Assessment & Learning Outcomes

Formative Assessments: Self-assessments, survey questions, weekly assignment feedback.

Summative Assessments: The course is comprised from a series of summative assessments including large and small projects, practical and theory tests, and presentations. Every assessment is connected to one or more course outcomes found at

https://www.edu.gov.mb.ca/k12/cur/teched/sytep/design_drafting/8435.pdf.

The final grade is given based on a weighted average of the different course outcomes, NOT from the individual assessments. The weight for each outcome is given below:

Outcome Number	Outcome Description	Weight
1.1	Define design problems.	1.0
1.2	Research and analyze information.	2.0
1.3	Synthesize information and ideas to create design solutions.	2.0
2.1	Prepare computer models of design solutions.	10.0
2.2	Prepare working and presentation drawings and documents.	10.0
3.1	Describe materials used in design solutions.	1.0
3.2	Describe manufacturing processes used in design solutions.	1.0
4.1	Plan and organize presentations of design solutions.	4.0
4.2	Use presentation production methods.	4.0
4.3	Present/defend design solutions.	3.0
5.1	Describe and use drawing and modelling tools and equipment.	6.0
5.2	Describe and use computer hardware and equipment.	1.0
5.3	Describe and use software.	2.0
6.1	Describe and apply mathematical concepts as they relate to design drafting.	3.0
6.2	Read, interpret, and communicate information.	2.0
6.3	Understand scientific concepts as they apply to design drafting.	2.0
7.1	Understand the impact of engineering design on the environment.	1.0
7.2	Describe the impact of engineering design on human health and well-being.	1.0
7.3	Recognize the economic impact of sustainable practices in engineering design.	1.0
8.1	Describe the evolution of design drafting, including its technological progression and emerging trends.	1.0
9.1	Incorporate the local and national manufacturing and engineering standards into designs.	2.0
9.2	Describe the ethical expectations of designers.	1.0
10.1	Demonstrate an awareness of rights, responsibilities, and safety procedures for specific tools, equipment, and working environments.	3.0
10.2	Describe health and safety laws and regulations.	1.0
11.1	Demonstrate fundamental employability skills.	8.0
11.2	Demonstrate personal management skills.	8.0
11.3	Demonstrate teamwork skills.	5.0
12.1	Describe post-secondary opportunities related to design drafting.	2.0
12.2	Describe career opportunities available in design drafting across industries.	2.0
12.3	Create, maintain, and present a portfolio.	1.0

There is NO final exam for this course.

Course Schedule

Unit	Approximate Number of Weeks
Introduction to Engineering	1
Inventor Basics	3
Dimensions	2
Reverse Engineering	1
Drawings	2
Assemblies	2
Research Project	2
Group Presentation	1
Image Rendering	1
Final Project	3

Course Policies

Attendance: Students that are absent for one or more days are responsible for ensuring that they catch up with any content that was covered during their absence prior to the end of the unit, or with the teacher's permission of an extension PRIOR to the absence.

Late work: Students are to save all their course work in their shared engineering folder on OneDrive. Students will not need to submit their work as the instructor will always have access. However, any work that is incomplete at the time of grading will be assigned a grade based on the level of completeness (e.g. if the project is only 75% complete, the student will receive a maximum score of 75%).

If a student has not saved their work in the correct location for assessment, they will be deducted a penalty from their total score towards **learning outcome 11.2**.

Academic integrity: There is a zero-tolerance policy for academic dishonesty (cheating), including but not limited to: replicating projects from the internet, completing or submitting other students work, plagiarism, or using AI to write content for any written assessments. Failure to comply with this policy will result in a grade of zero for that assessment and may result in the reporting of the incident to the student's parents or the school administration.

Class participation: All students are expected to participate in class activities and discussions.

Personal electronic devices: All personal electronic devices are prohibited during class time including cellphones, smart watches, ear buds and headphones. If a student is caught using their device, they will be asked to place the item in their locker. If the issue continues then either the student's parents or school administration will be contacted.