



## COURSE OUTLINE: CAD401 - ADVANCED CAD

Prepared: Donovan Kennedy

Approved: Corey Meunier, Chair, Technology and Skilled Trades

<b>Course Code: Title</b>	CAD401: ADVANCED COMPUTER AIDED DESIGN
<b>Program Number: Name</b>	4039: MECH. ENG. TN-MANUFA 4043: MECH ENG. TECHNOLOGY
<b>Department:</b>	MECHANICAL TECHNIQUES PS
<b>Semesters/Terms:</b>	22W
<b>Course Description:</b>	The students will learn modern computer aided design using some of the various programs available that are used in industry today. This course will build on the students knowledge and enable them to produce workable CAD drawings ready for industry. The technician and tradesperson is required to design and understand mechanical parts and assemblies. This course will instruct the student on proper 3D solid modeling techniques as well as how to modify and work with models to produce prints.
<b>Total Credits:</b>	2
<b>Hours/Week:</b>	2
<b>Total Hours:</b>	30
<b>Prerequisites:</b>	CAD225
<b>Corequisites:</b>	There are no co-requisites for this course.
<b>Vocational Learning Outcomes (VLO's) addressed in this course:</b>	<p><b>4039 - MECH. ENG. TN-MANUFA</b></p> <p>VLO 5 Use current and emerging technologies to support the implementation of mechanical engineering projects.</p> <p>VLO 7 Interpret, prepare and modify mechanical engineering drawings and other related technical documents.</p> <p>VLO 8 Contribute to the design and the analysis of mechanical components, processes and systems applying fundamentals of mechanical engineering.</p> <p><b>4043 - MECH ENG. TECHNOLOGY</b></p> <p>VLO 5 Use current and emerging technologies to implement mechanical engineering projects.</p> <p>VLO 7 Prepare, analyze, evaluate and modify mechanical engineering drawings and other related technical documents.</p> <p>VLO 9 Design, manufacture and maintain mechanical components according to required specifications.</p>
<b>Essential Employability Skills (EES) addressed in this course:</b>	<p>EES 1 Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience.</p> <p>EES 2 Respond to written, spoken, or visual messages in a manner that ensures effective communication.</p>

In response to public health requirements pertaining to the COVID19 pandemic, course delivery and assessment traditionally delivered in-class, may occur remotely either in whole or in part in the 2021-2022 academic year.



SAULT COLLEGE | 443 NORTHERN AVENUE | SAULT STE. MARIE, ON P6B 4J3, CANADA | 705-759-2554

	<p>EES 3 Execute mathematical operations accurately.</p> <p>EES 4 Apply a systematic approach to solve problems.</p> <p>EES 5 Use a variety of thinking skills to anticipate and solve problems.</p> <p>EES 6 Locate, select, organize, and document information using appropriate technology and information systems.</p> <p>EES 7 Analyze, evaluate, and apply relevant information from a variety of sources.</p> <p>EES 9 Interact with others in groups or teams that contribute to effective working relationships and the achievement of goals.</p> <p>EES 10 Manage the use of time and other resources to complete projects.</p> <p>EES 11 Take responsibility for ones own actions, decisions, and consequences.</p>
<b>Course Evaluation:</b>	<p>Passing Grade: 50%, D</p> <p>A minimum program GPA of 2.0 or higher where program specific standards exist is required for graduation.</p>
<b>Other Course Evaluation &amp; Assessment Requirements:</b>	<p>Grade Definition Grade Point Equivalent</p> <p>A+ 90 - 100% 4.00</p> <p>A 80 - 89% 4.00</p> <p>B 70 - 79% 3.00</p> <p>C 60 - 69% 2.00</p> <p>D 50 - 59% 1.00</p> <p>F (Fail)49% and below 0.00</p> <p>CR (Credit) Credit for diploma requirements has been awarded.</p> <p>S Satisfactory achievement in field /clinical placement or non-graded subject area.</p> <p>U Unsatisfactory achievement in field/clinical placement or non-graded subject area.</p> <p>X A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.</p> <p>NR Grade not reported to Registrar`s office.</p> <p>W Student has withdrawn from the course without academic penalty.</p> <p>Attendance:</p> <p>A student who attends less than 80%(12) classes will receive a zero(0) for attendance</p> <p>Sault College is committed to student success. There is a direct correlation between academic performance and class attendance, therefore, for the benefit of all its constituents, all students are encouraged to attend all of their scheduled learning and evaluation sessions. This implies arriving on time and remaining for the duration of the scheduled session.</p> <p>It is the departmental policy that once the classroom door has been closed, the learning process has begun. Late arrivers will not be granted admission to the room.</p>
<b>Books and Required Resources:</b>	<p>Blueprint Reading for the Machine Trades by Russ Shultz and Larry Smith Publisher: Pearson Edition: 7 ISBN: 0-13-217220-8 Book used in Semester 1 DRF105</p>

In response to public health requirements pertaining to the COVID19 pandemic, course delivery and assessment traditionally delivered in-class, may occur remotely either in whole or in part in the 2021-2022 academic year.

**Course Outcomes and Learning Objectives:**

<b>Course Outcome 1</b>	<b>Learning Objectives for Course Outcome 1</b>
1. Upon successful completion of this course, the student will demonstrate the ability to modify Two dimensional sketching	1.1 Establish Sketch Planes 1.2 2D Constraints 1.3 Parametric Dimensions
<b>Course Outcome 2</b>	<b>Learning Objectives for Course Outcome 2</b>
2. Upon successful completion of this course, the student will produce Revolved and Extruded Features	2.1 Extrude Solid Parts From Sketches 2.2 Revolve Solid Parts from Sketches 2.3 Cut-outs from Parts using Extrusions 2.4 Revolved Cuts from Parts using Revolutions 2.5 Establishing Planes for Features
<b>Course Outcome 3</b>	<b>Learning Objectives for Course Outcome 3</b>
3. Upon successful completion of this course, the student will be able to demonstrate Holes and Patterns	3.1 How to Use Hole and Thread Features 3.2 How to use Patterns to Create Multiple Features
<b>Course Outcome 4</b>	<b>Learning Objectives for Course Outcome 4</b>
4. Upon successful completion of this course, the student will be able to create Assemblies	4.1 Create Assemblies 4.2 Understand Assembly Constraints
<b>Course Outcome 5</b>	<b>Learning Objectives for Course Outcome 5</b>
5. Upon successful completion of this course, the student will be able to produce drawings from 3D Models and Assemblies	5.1 Placing Principle Orthographic Views 5.2 Section Views 5.3 Auxiliary Views 5.4 Placement of Dimensions, Tolerances, Feature Control Frames, and, Comments
<b>Course Outcome 6</b>	<b>Learning Objectives for Course Outcome 6</b>
6. Upon successful completion of this course, the student will be able to utilize the Advantages of Solid Modeling	6.1 Mass Property Analysis 6.2 Check Interferences 6.3 Linked Parts and Assemblies 6.4 Editing and Modifying Parts and Assemblies

**Evaluation Process and Grading System:**

Evaluation Type	Evaluation Weight
Assignments	70%
Attendance	10%
Final Exam	20%

**Date:** September 3, 2021**Addendum:** Please refer to the course outline addendum on the Learning Management System for further information.

In response to public health requirements pertaining to the COVID19 pandemic, course delivery and assessment traditionally delivered in-class, may occur remotely either in whole or in part in the 2021-2022 academic year.



SAULT COLLEGE | 443 NORTHERN AVENUE | SAULT STE. MARIE, ON P6B 4J3, CANADA | 705-759-2554



In response to public health requirements pertaining to the COVID19 pandemic, course delivery and assessment traditionally delivered in-class, may occur remotely either in whole or in part in the 2021-2022 academic year.

 SAULT COLLEGE | 443 NORTHERN AVENUE | SAULT STE. MARIE, ON P6B 4J3, CANADA | 705-759-2554