

**SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY**

**SAULT STE. MARIE, ONTARIO**



**SAULT  
COLLEGE**

**COURSE OUTLINE**

**COURSE TITLE:** Advanced CAD

**CODE NO. :** CAD401 **SEMESTER:** TWO

**PROGRAM:** Mechanical Engineering Technician

**AUTHOR:** Greg Beith

**DATE:** January 2015 **PREVIOUS OUTLINE DATED:** January 2014

**APPROVED:** *“Corey Meunier”*  
CHAIR

**TOTAL CREDITS:** TWO

**PREREQUISITE(S):** CAD225 – Auto Schematics

**HOURS/WEEK:** TWO

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**For additional information, please contact Corey Meunier, Chair**  
**School of Technology & Skilled Trades**  
**(705) 759-2554, Ext. 2610**

**I. COURSE DESCRIPTION:**

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.

**II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:**

Upon successful completion of this course, the student will demonstrate the ability to:

**1. *Two Dimensional Sketching***Potential Elements of the Performance:

- Establish Sketch Planes
- 2D Constraints
- Parametric Dimensions

**2. *Revolved and Extruded Features***Potential Elements of the Performance:

- Extrude Solid Parts From Sketches
- Revolve Solid Parts from Sketches
- Cut-outs from Parts using Extrusions
- Revolved Cuts from Parts using Revolutions
- Establishing Planes for Features

**3. *Holes and Patterns***Potential Elements of the Performance:

- How to Use Hole and Thread Features
- How to use Patterns to Create Multiple Features

**4. *Assemblies***Potential Elements of the Performance:

- Create Assemblies
- Understand Assembly Constraints

**5. *Drawings from 3D Models and Assemblies***Potential Elements of the Performance:

- Placing Principle Orthographic Views
- Section Views
- Auxiliary Views
- Placement of Dimensions, Tolerances, Feature Control Frames, and, Comments

## 6. ***Advantages of Solid Modeling***

### Potential Elements of the Performance:

- Mass Property Analysis
- Check Interferences
- Linked Parts and Assemblies
- Editing and Modifying Parts and Assemblies

## III. **TOPICS:**

1. Two Dimensional Sketching
2. Revolved and Extruded Features
3. Holes and Patterns
4. Assemblies
5. Drawings from 3D Models and Assemblies
6. Advantages of Solid Modeling

## IV. **REQUIRED RESOURCES/TEXTS/MATERIALS:**

“ Blueprint Reading for the Machine Trades” seventh edition,  
By Russ Shultz and Larry Smith

## V. **EVALUATION PROCESS/GRADING SYSTEM:**

The following semester grades will be assigned to students:

Assignments	70%
Final exam	20%
Attendance	10% ( 12/15) See special note
Total	100%

The following semester grades will be assigned to students:

<b>Grade</b>	<b><u>Definition</u></b>	<b><i>Grade Point Equivalent</i></b>
A+	90 – 100%	4.00
A	80 – 89%	3.00
B	70 - 79%	2.00
C	60 - 69%	1.00
D	50 – 59%	0.00
F (Fail)	49% and below	

CR (Credit)	Credit for diploma requirements has been awarded.
S	Satisfactory achievement in field /clinical placement or non-graded subject area.
U	Unsatisfactory achievement in field/clinical placement or non-graded subject area.
X	A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.
NR	Grade not reported to Registrar's office.
W	Student has withdrawn from the course without academic penalty.

## VI. SPECIAL NOTES:

### Attendance:

A student who attends less than 80%(12) classes will receive a zero(0) for attendance

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.

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.

## VII. COURSE OUTLINE ADDENDUM:

The provisions contained in the addendum located on the portal form part of this course outline.