



COURSE OUTLINE: AMF102 - SOLID MODELLING I

Prepared: Donovan Kennedy

Approved: Corey Meunier, Chair, Technology and Skilled Trades

Course Code: Title	AMF102: SOLID MODELLING I
Program Number: Name	4069: AUTOMATED MANUFACT.
Department:	ROBOTICS GRADUATE CERTIFICATE
Academic Year:	2022-2023
Course Description:	Solid Modelling I focuses on the transition from 2D to 3D design and 3D software used in manufacturing product applications. The student will be introduced to mechanical 3d design software used to build parametric models of parts and assemblies, and how to make drawings of those parts and assemblies.
Total Credits:	3
Hours/Week:	3
Total Hours:	42
Prerequisites:	There are no pre-requisites for this course.
Corequisites:	There are no co-requisites for this course.
This course is a pre-requisite for:	AMF202, AMF205
Vocational Learning Outcomes (VLO's) addressed in this course:	4069 - AUTOMATED MANUFACT. VLO 2 Analyze and synthesize technical data to develop graphics and related technical documents conforming to engineering standards. VLO 3 Select and manage appropriate hardware and software for the creation of engineering designs. VLO 7 Exercise professionalism, leadership, and effective communication in an industrial work setting to increase overall productivity and support a positive work environment.
Essential Employability Skills (EES) addressed in this course:	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. EES 2 Respond to written, spoken, or visual messages in a manner that ensures effective communication. EES 4 Apply a systematic approach to solve problems. EES 5 Use a variety of thinking skills to anticipate and solve problems. EES 6 Locate, select, organize, and document information using appropriate technology and information systems. EES 7 Analyze, evaluate, and apply relevant information from a variety of sources. EES 9 Interact with others in groups or teams that contribute to effective working relationships and the achievement of goals. EES 10 Manage the use of time and other resources to complete projects.



	EES 11 Take responsibility for ones own actions, decisions, and consequences.												
Course Evaluation:	<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>												
Other Course Evaluation & Assessment Requirements:	<p>Grade</p> <p>Definition Grade Point Equivalent</p> <p>A+ 90 - 100% 4.00</p> <p>A 80 - 89%</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>Smart watches, smart phones and similar devices are not allowed during tests or quizzes and must be removed.</p> <p>A student who attends less than 80% (12) classes will receive a zero (0) for their attendance grade.</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>												
Course Outcomes and Learning Objectives:	<table border="1"> <thead> <tr> <th>Course Outcome 1</th> <th>Learning Objectives for Course Outcome 1</th> </tr> </thead> <tbody> <tr> <td>1. Two Dimensional Sketching</td> <td>1.1 Establish Sketch Planes 1.2 2D Constraints 1.3 Parametric Dimensions</td> </tr> <tr> <th>Course Outcome 2</th> <th>Learning Objectives for Course Outcome 2</th> </tr> <tr> <td>2. Revolved and Extruded Features</td> <td>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</td> </tr> <tr> <th>Course Outcome 3</th> <th>Learning Objectives for Course Outcome 3</th> </tr> <tr> <td>3. Holes and Patterns</td> <td>3.1 How to Use Hole and Thread Features 3.2 How to use Patterns to Create Multiple Features</td> </tr> </tbody> </table>	Course Outcome 1	Learning Objectives for Course Outcome 1	1. Two Dimensional Sketching	1.1 Establish Sketch Planes 1.2 2D Constraints 1.3 Parametric Dimensions	Course Outcome 2	Learning Objectives for Course Outcome 2	2. 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	Course Outcome 3	Learning Objectives for Course Outcome 3	3. Holes and Patterns	3.1 How to Use Hole and Thread Features 3.2 How to use Patterns to Create Multiple Features
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	Course Outcome 4	Learning Objectives for Course Outcome 4							
	4. Assemblies	4.1 Create Assemblies 4.2 Understand Assembly Constraints 4.3 Bottom-up design 4.4 Top-down design							
	Course Outcome 5	Learning Objectives for Course Outcome 5							
	5. Drawings from 3D Models and Assemblies	5.1 Drawings from 3D Models and Assemblies 5.2 Placement of Dimensions 5.3 BOM tables and automatic population							
	Course Outcome 6	Learning Objectives for Course Outcome 6							
	6. Solid Modelling for Automated Manufacturing	6.1 Mass Property Analysis 6.2 Check Interference 6.3 Editing and Modifying Parts and Assemblies							
Evaluation Process and Grading System:	<table border="1"> <thead> <tr> <th>Evaluation Type</th> <th>Evaluation Weight</th> </tr> </thead> <tbody> <tr> <td>Assignments</td> <td>70%</td> </tr> <tr> <td>Attendance</td> <td>10%</td> </tr> <tr> <td>Final Exam</td> <td>20%</td> </tr> </tbody> </table>	Evaluation Type	Evaluation Weight	Assignments	70%	Attendance	10%	Final Exam	20%
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Date:	June 1, 2022								
Addendum:	Please refer to the course outline addendum on the Learning Management System for further information.								