Course Information Form (CIF)

Course Code: CAD 119

Course Title: Computer-Aided Machine Design II

Department: Applied Sciences and Technologies
PCS Code: 1.2 - Occupational/Technical Instruction
CIP Code: 47.0303
Repeatability: 0

Effective Date: Summer 2026

Credit Hours

Catalog Notation: 4-0-4
Credit Hour Distribution:

Lecture: 4	Lab: 0	Clinical: 0	**Total: 4**

General Course Information

Catalog Description

Theory and application of design processes including dimensions, tolerances, assembly, multi-view, and details. Also includes application of the design process to CAD drawings and solid models using SolidWorks software.

General Course Objectives

Students will understand mechanical components and their relationship to mechanical devices. Also, the construction of various CAD models and drawings will further build student modeling skills by utilizing intermediate and advanced software modeling techniques. The students will be able to capstone their efforts in applying the standards used in a mechanical/industrial environment in 3-dimensional modeling.

Minimum Placement Levels

English	Reading	Math
Placement into ENG 098	Placement into CCS 098	Placement into MAT 059

Prerequisites

Credit in CAD 113

Methods of Evaluation

The minimum methods of evaluation include 3 labs, 3 quizzes, and 1 final project that the student selects.

Instructional Materials and Additional Supplies

Beginning Guide to SolidWorks, Level II, by Alejandro Reyes (current software version that is used on campus)

Course Content

General Learning Outcomes (GLOs)

- Communication: Students will demonstrate the ability to read, write, listen, and speak effectively.
- Creativity and Innovative Thinking: Students will design, present, and interpret materials, information, and ideas in innovative ways.
- Reasoning and Inquiry: Students will demonstrate the ability to solve problems using deductive reasoning and logic, quantitative reasoning, or the scientific method.

Course Segments and Student Learning Outcomes

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Introduction to Advanced CAD Modeling, Review of Basic Modeling	1. Apply basic modeling commands to create standard components and assemblies.	4	0	0
Multibody Solids	1. Create multibody solids by utilizing the following commands: Extrude, Combine, Move/Copy, Pattern, Split, Insert Part, Mate Reference, and Saving multibody solids.	16	0	0
Sweeps	1. Apply the sweep features including: Helix, Spiral, Projected Curve, Composite Curve, Curvature Combs, Threads, and Twist Control.	13	0	0
Lofts and Splines	1. Demonstrate the Loft and Splines techniques: Derived and copied sketches, inserting derived sketches, Delete Face, Deviation Analysis, and spline sketching.	15	0	0
Other Advanced Modeling Tools	1. Perform the advanced modeling techniques and commands: Advanced Fillet, Wrap, Deform, Knit Surface, Move Face, and the Hole Wizard.	12	0	0

Total Contact Hours

Lecture Hours	Lab Hours	Clinical Hours
60	0	0