



Course Outcome Summary

Required Program Core Course

MDTC 161 Mechanical Drafting and CAD II

Course Information

Division	ASET
Contact Hours	90
Theory	30
Lab Hours	60
Total Credits	4

Prerequisites **MDTC 160**

Course Description

This course is designed as a continuation of the Mechanical Drafting and CAD I course. Sketching, detail drawings, assembly drawings and working drawings will be taught using both sketching techniques and Computer Aided Design (CAD) software. 3D concepts and solid modeling will also be included in this course.

This course is a required core course for students pursuing an AAS in Mechanical Design Technology

Program Outcomes Addressed by this Course:

Upon successful completion of this course, students should be able to meet the program outcomes listed below:

- A. Effectively communicate technical ideas and problem-solving decisions with others.
- B. Demonstrate knowledge, techniques, skills, and use of the appropriate tool in mechanical design applications.
- C. Apply math, science, and engineering technology principles to solve problems in mechanical design.
- D. Use creativity in the design of mechanical components and systems.
- E. Recognize problems in mechanical design applications and develop appropriate solutions.
- F. Work productively as an individual and as a team member of a problem-solving team in an engineering environment.
- G. Recognize the need to stay current in the mechanical design career field.
- H. Demonstrate professional and ethical behavior.

Course Outcomes

In order to evidence success in this course, the students will be able to:

1. **Create sketches appropriate for the design/engineering field.**
Applies to Program Outcome
 - A. Effectively communicate technical ideas and problem-solving decisions with others.
 - B. Demonstrate knowledge, techniques, skills, and use of the appropriate tool in mechanical design applications.
 - F. Work productively as an individual and as a team member of a problem-solving team in an engineering environment.
2. **Understand the components and requirements of detail drawings.**
Applies to Program Outcome
 - A. Effectively communicate technical ideas and problem-solving decisions with others.
 - B. Demonstrate knowledge, techniques, skills, and use of the appropriate tool in mechanical design applications.
3. **Understand the components and requirements for assembly drawings.**
Applies to Program Outcome
 - A. Effectively communicate technical ideas and problem-solving decisions with others.
 - B. Demonstrate knowledge, techniques, skills, and use of the appropriate tool in mechanical design applications.



4. **Understand the components and requirements for a complete set of working drawings.**
Applies to Program Outcome
 - A. Effectively communicate technical ideas and problem-solving decisions with others.
 - B. Demonstrate knowledge, techniques, skills, and use of the appropriate tool in mechanical design applications.
5. **Correctly apply the ANSI drafting standards to drawings.**
Applies to Program Outcome
 - A. Effectively communicate technical ideas and problem-solving decisions with others.
 - B. Demonstrate knowledge, techniques, skills, and use of the appropriate tool in mechanical design applications.
 - F. Work productively as an individual and as a team member of a problem-solving team in an engineering environment.
6. **Demonstrate a thorough working knowledge of the CAD software.**
Applies to Program Outcome
 - A. Effectively communicate technical ideas and problem-solving decisions with others.
 - B. Demonstrate knowledge, techniques, skills, and use of the appropriate tool in mechanical design applications.
 - F. Work productively as an individual and as a team member of a problem-solving team in an engineering environment.
7. **Create multiple sets of working drawings utilizing a 2D and/or 3D CAD program.**
Applies to Program Outcome
 - A. Effectively communicate technical ideas and problem-solving decisions with others.
 - B. Demonstrate knowledge, techniques, skills, and use of the appropriate tool in mechanical design applications.
 - F. Work productively as an individual and as a team member of a problem-solving team in an engineering environment.
8. **Demonstrate the ability to reverse engineer a product.**
Applies to Program Outcome
 - A. Effectively communicate technical ideas and problem-solving decisions with others.
 - B. Demonstrate knowledge, techniques, skills, and use of the appropriate tool in mechanical design applications.
 - C. Apply math, science, and engineering technology principles to solve problems in mechanical design.
 - E. Recognize problems in mechanical design applications and develop appropriate solutions.
 - F. Work productively as an individual and as a team member of a problem-solving team in an engineering environment.