



# Course Outcome Summary

**Required Program Core Course and  
General Education Course Satisfier  
MDTC 160 Mechanical Drafting and CAD I**

## Course Information

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

**Prerequisites** RDG 090 or qualifying scores on accepted placement tests

## Course Description

This course is a first exposure to the drafting and design field. Orthographic projection, dimensioning, sectioning, tolerancing, threads and fasteners, and assembly drawings will be taught using both sketching techniques and Computer Aided Design (CAD) software. A major emphasis will be placed on current drafting standards and procedures.

**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.

**This course is approved as a General Education competency satisfier.**

**General Education Goal:** Communication

**Competency:** Understand and apply current and appropriate technology tools and resources

**Learning Outcome:** Students will use computer technology to retrieve and communicate information.

## General Education Learning Objectives:

- A. Demonstrate an understanding of the functionality and terminology associated with current information technology tools and resources.
- B. Demonstrate the ability to conduct online research to locate and retrieve relevant information from credible sources.
- C. Demonstrate the ability to use document processing software.
- D. Demonstrate the ability to use presentation software to communicate information and ideas.
- E. Demonstrate the ability to appropriately and responsibly utilize current communication technology methods.



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## Course Outcomes

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

### 1. Create drawings in AutoCAD 2D drawing workspace.

Applies to Gen Ed Learning Outcome

- A. Demonstrate an understanding of the functionality and terminology associated with current information technology tools and resources.
- B. Demonstrate the ability to conduct online research to locate and retrieve relevant information from credible sources.
- C. Demonstrate the ability to use document processing software.
- D. Demonstrate the ability to use presentation software to communicate information and ideas.
- E. Demonstrate the ability to appropriately and responsibly utilize current communication technology methods.

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.
- G. Recognize the need to stay current in the mechanical design career field.

### 2. Demonstrate how to create an orthographic projection.

Applies to Gen Ed Learning Outcome

- A. Demonstrate an understanding of the functionality and terminology associated with current information technology tools and resources.
- C. Demonstrate the ability to use document processing software.
- D. Demonstrate the ability to use presentation software to communicate information and ideas.

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.
- G. Recognize the need to stay current in the mechanical design career field.

### 3. Demonstrate how to dimension a multi-view drawing using proper dimensioning techniques.

Applies to Gen Ed Learning Outcome

- A. Demonstrate an understanding of the functionality and terminology associated with current information technology tools and resources.
- C. Demonstrate the ability to use document processing software.
- D. Demonstrate the ability to use presentation software to communicate information and ideas.

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.
- G. Recognize the need to stay current in the mechanical design career field.



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**4. Demonstrate how to create various section views.**

Applies to Gen Ed Learning Outcome

A. Demonstrate an understanding of the functionality and terminology associated with current information technology tools and resources.

C. Demonstrate the ability to use document processing software.

D. Demonstrate the ability to use presentation software to communicate information and ideas.

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.

G. Recognize the need to stay current in the mechanical design career field.

**5. Demonstrate knowledge of tolerancing and its importance to mass production.**

Applies to Gen Ed Learning Outcome

A. Demonstrate an understanding of the functionality and terminology associated with current information technology tools and resources.

B. Demonstrate the ability to conduct online research to locate and retrieve relevant information from credible sources.

C. Demonstrate the ability to use document processing software.

D. Demonstrate the ability to use presentation software to communicate information and ideas.

E. Demonstrate the ability to appropriately and responsibly utilize current communication technology methods.

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.

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.

**6. Demonstrate knowledge of thread notations and fasteners.**

Applies to Gen Ed Learning Outcome

A. Demonstrate an understanding of the functionality and terminology associated with current information technology tools and resources.

B. Demonstrate the ability to conduct online research to locate and retrieve relevant information from credible sources.

C. Demonstrate the ability to use document processing software.

D. Demonstrate the ability to use presentation software to communicate information and ideas.

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.

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.



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## 7. Demonstrate how to create an assembly drawing.

### Applies to Gen Ed Learning Outcome

- A. Demonstrate an understanding of the functionality and terminology associated with current information technology tools and resources.
- B. Demonstrate the ability to conduct online research to locate and retrieve relevant information from credible sources.
- C. Demonstrate the ability to use document processing software.
- D. Demonstrate the ability to use presentation software to communicate information and ideas.
- E. Demonstrate the ability to appropriately and responsibly utilize current communication technology methods.

### 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.
- G. Recognize the need to stay current in the mechanical design career field.

Date Updated: 4-14-19  
By: Dean R. Kerste