



MONROE COUNTY
COMMUNITY COLLEGE

Course Outcome Summary

METC 170

Introduction to Parametric CAD/CATIA

Course Information

Division	Applied Science and Engineering Technology
Contact Hours	90.0
Total Credits	3.0

Prerequisites MDTC 160 or equivalent CAD experience

Course Description

This is an introductory course for all new users of CATIA V5. Students will gain an understanding of the CATIA V5 interface and how to use CATIA V5 to create solid models of parts, assemblies and drawings. Parts will be managed in the context of an assembly. This is a hands-on course where students produce simple parts drawings and assemblies.

This course is a required core course for students pursuing a degree in Mechanical Engineering Technology

Program Outcomes Addressed by this Course:

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

- B. Produce graphic representations of designs using CAD software, Solid Modeling software, and pencil and paper methods.
- C. Select materials and determine component sizes and shapes to meet design criteria.
- E. Identify typical mechanical components and explain their function.
- G. Recognize assumptions and limits of analysis to the application of technology, including social and ethical implications.
- I. Recognize the need to engage in lifelong learning, and to perform research or conduct investigations to continuously upgrade knowledge and skills.
- J. Communicate effectively, and work as part of a team.



Course Outcomes

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

1. Describe the advantages of 3D modeling over 2D

Applies To Program Outcomes

- G. Recognize assumptions and limits of analysis to the application of technology, including social and ethical implications.
- I. Recognize the need to engage in lifelong learning, and to perform research or conduct investigations to continuously upgrade knowledge and skills.

2. Create and modify properly constrained mechanical parts using Catia's sketcher, drafting, design, and assembly workbenches.

Applies To Program Outcomes

- B. Produce graphic representations of designs using CAD software, Solid Modeling software, and pencil and paper methods.
- C. Select materials and determine component sizes and shapes to meet design criteria.
- E. Identify typical mechanical components and explain their function.
- G. Recognize assumptions and limits of analysis to the application of technology, including social and ethical implications.
- I. Recognize the need to engage in lifelong learning, and to perform research or conduct investigations to continuously upgrade knowledge and skills.

3. Create and constrain complex assemblies

Applies To Program Outcomes

- B. Produce graphic representations of designs using CAD software, Solid Modeling software, and pencil and paper methods.
- C. Select materials and determine component sizes and shapes to meet design criteria.
- E. Identify typical mechanical components and explain their function.
- G. Recognize assumptions and limits of analysis to the application of technology, including social and ethical implications.
- I. Recognize the need to engage in lifelong learning, and to perform research or conduct investigations to continuously upgrade knowledge and skills.
- J. Communicate effectively, and work as part of a team.

4.



4. Produce printable exploded assemblies and orthographic detail drawings.

Applies To Program Outcomes

- B. Produce graphic representations of designs using CAD software, Solid Modeling software, and pencil and paper methods.
- C. Select materials and determine component sizes and shapes to meet design criteria.
- E. Identify typical mechanical components and explain their function.
- G. Recognize assumptions and limits of analysis to the application of technology, including social and ethical implications.
- I. Recognize the need to engage in lifelong learning, and to perform research or conduct investigations to continuously upgrade knowledge and skills.

5. Apply proper methods to constrain features

Applies To Program Outcomes

- B. Produce graphic representations of designs using CAD software, Solid Modeling software, and pencil and paper methods.
- E. Identify typical mechanical components and explain their function.
- G. Recognize assumptions and limits of analysis to the application of technology, including social and ethical implications.
- I. Recognize the need to engage in lifelong learning, and to perform research or conduct investigations to continuously upgrade knowledge and skills.

6. Use family tables to form similar parts including Bill's of Material.

Applies To Program Outcomes

- B. Produce graphic representations of designs using CAD software, Solid Modeling software, and pencil and paper methods.
- C. Select materials and determine component sizes and shapes to meet design criteria.
- E. Identify typical mechanical components and explain their function.
- G. Recognize assumptions and limits of analysis to the application of technology, including social and ethical implications.
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7. Break a mechanical part into a collection of work plane sketches and features.

Applies To Program Outcomes

- B. Produce graphic representations of designs using CAD software, Solid Modeling software, and pencil and paper methods.
- C. Select materials and determine component sizes and shapes to meet design criteria.
- E. Identify typical mechanical components and explain their function.
- G. Recognize assumptions and limits of analysis to the application of technology, including social and ethical implications.
- I. Recognize the need to engage in lifelong learning, and to perform research or conduct investigations to continuously upgrade knowledge and skills.
- J. Communicate effectively, and work as part of a team.

8. Perform kinematic simulations of assemblies.

Applies To Program Outcomes

- B. Produce graphic representations of designs using CAD software, Solid Modeling software, and pencil and paper methods.
- G. Recognize assumptions and limits of analysis to the application of technology, including social and ethical implications.

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