

ITT Technical Institute

DT2740

Advanced CAD Methods Using AutoCAD

Onsite and Online Course

SYLLABUS

Credit hours: 3


Contact/Instructional hours: 40 (20 Theory Hours, 20 Lab Hours)

Prerequisite(s) and/or Corequisite(s):

Prerequisites: DT2510 Advanced CAD Methods or equivalent

Course Description:

This course focuses on the tools, features and common tasks of AutoCAD. Topics will include altering objects, annotations, creating template content, creating additional drawing objects, dimensioning, drawing organization and inquiry commands, hatching objects, inserting and managing external references, isolating or hiding displayed objects, manipulating objects, layouts and visibility, printing and plotting, and reusable content. Students will demonstrate competency using all the AutoCAD commands and features. This course examines the concepts found in the AutoCAD Certified-Professional certification exam.



COURSE SUMMARY

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MAJOR INSTRUCTIONAL AREAS

1. Tools and Features of AutoCAD
2. Drawing and Editing Objects
3. Templates, Annotation, Dimensioning, and External Reference
4. Plotting and Saving Files
5. AutoCAD Professional User Certification Exam

COURSE LEARNING OBJECTIVES

By the end of this course, you should be able to:

1. Use Draw and Edit commands to create drawings in AutoCAD.
2. Use dynamic input and shortcut menus in AutoCAD.
3. Use AutoCAD's inquiry commands such as Distance and List to extract information about an existing drawing.
4. Alter object properties, including layers and styles of existing drawings in AutoCAD.
5. Create and edit dynamic blocks and polylines in AutoCAD.
6. Apply dimensions to AutoCAD's drawings and create dimension styles.
7. Populate tables with text and data stored in fields in AutoCAD.
8. Create annotative styles and objects in AutoCAD.
9. Reference external drawings and images.
10. Use and create viewports in AutoCAD.

11. Use AutoCAD commands and plot styles to set printing and plotting options.
12. Apply test-taking and time management techniques.

COURSE OUTLINE

MODULE 1: APPLYING BASIC DRAWING SKILLS IN AUTOCAD

COURSE LEARNING OBJECTIVES COVERED

- Use Draw and Edit commands to create drawings in AutoCAD.
- Use dynamic input and shortcut menus in AutoCAD.
- Use AutoCAD's inquiry commands such as Distance and List to extract information about an existing drawing.

TOPICS COVERED

- Distance and Coordinates
- Shortcut Menus
- Understanding and Applying Dynamic Inputs
- Working with AutoCAD

MODULE LEARNING ACTIVITIES	GRADED	OUT-OF-CLASS TIME
Reading: Omura & Benton, Chapters 1 and 2.	No	5.5 hr
Reading: ITT Tech Virtual Library> Basic Search> Browse> Browse by Format> Books> Books24x7> Search> Hamad, M. M. (2015). <i>AutoCAD 2015 beginning and intermediate</i> . Mercury Learning> Chapters 1–4.	No	2 hr
Lesson: Study the lesson for this module.	No	1.5 hr
Discussion: Participate in the discussion titled “AutoCAD Drafting Tools.”	Yes	N/A
Lab: Complete the lab titled “Creating and Editing a Drawing.”	Yes	N/A
Quiz: Prepare for Quiz 1.	No	2 hr

Total Out-Of-Class Activities: 11 Hours

MODULE 2: CONTROLLING OBJECT VISIBILITY AND APPEARANCE

COURSE LEARNING OBJECTIVES COVERED

- Use AutoCAD's inquiry commands such as Distance and List to extract information about an existing drawing.
- Alter object properties, including layers and styles of existing drawings in AutoCAD.
- Apply dimensions to AutoCAD's drawings and create dimension styles.

TOPICS COVERED

- Using Drafting Tools
- Inquiry Shortcut Commands
- Understanding Annotation Scale
- Editing and Reusing Data

MODULE LEARNING ACTIVITIES	GRADED	OUT-OF-CLASS TIME
Reading: Omura & Benton, Chapters 3, 5, and 6.	No	11.5 hr
Reading: ITT Tech Virtual Library> Basic Search> Browse> Browse by Format> Books> Books 24x7> Search> Gladfelter, D. (2014). <i>AutoCAD LT 2015: No experience required</i> . Sybex> Chapters 7 and 8.	No	1 hr
Lesson: Study the lesson for this module.	No	2 hr
Quiz: Take Quiz 1.	Yes	N/A
Lab 1: Complete the lab titled "Creating and Analyzing a Drawing Draft."	Yes	N/A
Lab 2: Complete the lab titled "Utilizing Layer Manager."	Yes	N/A
Quiz: Prepare for Quiz 2.	No	2 hr

Total Out-Of-Class Activities: 16.5 Hours

MODULE 3: DIMENSIONING

COURSE LEARNING OBJECTIVES COVERED

- Use Draw and Edit commands to create drawings in AutoCAD.
- Use dynamic input and shortcut menus in AutoCAD.
- Use AutoCAD's inquiry commands such as Distance and List to extract information about an existing drawing.
- Alter object properties, including layers and styles of existing drawings in AutoCAD.
- Create and edit dynamic blocks and polylines in AutoCAD.
- Apply dimensions to AutoCAD's drawings and create dimension styles.
- Populate tables with text and data stored in fields in AutoCAD.

TOPICS COVERED

- Dimensioning
- Objects and Blocks
- Fields and Tables
- Table Styles

MODULE LEARNING ACTIVITIES	GRADED	OUT-OF-CLASS TIME
Reading: Omura & Benton, Chapters 4, 10, and 11.	No	10.5 hr
Reading: ITT Tech Virtual Library> Basic Search> Browse> Browse by Format> Books> Books 24x7> Search> Gladfelter, D. (2014). <i>AutoCAD LT 2015: No experience required</i> . Sybex> Chapters 9–12.	No	1 hr
Lesson: Study the lesson for this module.	No	1.5 hr
Quiz: Take Quiz 2.	Yes	N/A
Lab 1: Complete the lab titled “Working with Multi-Dimensional Images.”	Yes	N/A
Lab 2: Complete the lab titled “Working with the Dimension Style Command.”	Yes	N/A
Mid-Term Exam: Prepare for the mid-term exam.	No	2.5 hr

Total Out-Of-Class Activities: 15.5 Hours

MODULE 4: ANNOTATIVE STYLES AND REFERENCING EXTERNAL DRAWINGS

COURSE LEARNING OBJECTIVES COVERED

- Create annotative styles and objects in AutoCAD.
- Reference external drawings and images.

TOPICS COVERED

- Annotative Styles
- Using Attributes
- Using Hatching
- Using External References

MODULE LEARNING ACTIVITIES	GRADED	OUT-OF-CLASS TIME
Reading: Omura & Benton, Chapters 7, 12, 14, and 19.	No	8 hr
Lesson: Study the lesson for this module.	No	2 hr
Mid-Term Exam: Take the mid-term exam.	Yes	N/A
Lab 1: Complete the lab titled “Using Annotative Styles.”	Yes	N/A
Lab 2: Complete the lab titled “Using External References.”	Yes	N/A
Quiz: Prepare for Quiz 3.	No	2 hr

Total Out-Of-Class Activities: 12 Hours

MODULE 5: UNDERSTANDING 3D DRAWINGS

COURSE LEARNING OBJECTIVES COVERED

- Use and create viewports in AutoCAD.
- Use AutoCAD commands and plot styles to set printing and plotting options.

TOPICS COVERED

- Viewports
- Advanced 3D Features
- Creating 3D Forms from 2D Shapes
- User Coordinate System

MODULE LEARNING ACTIVITIES	GRADED	OUT-OF-CLASS TIME
Reading: Omura & Benton, Chapters 15, 20, 21, and 22.	No	11 hr
Reading: ITT Tech Virtual Library> Basic Search> Browse> Browse by Format> Books> Books 24x7> Search> Hamad, M. M. (2015). <i>AutoCAD 2015 beginning and intermediate</i> . Mercury Learning> Chapters 5–9.	No	2.5 hr
Lesson: Study the lesson for this module.	No	2 hr
Quiz: Take Quiz 3.	Yes	N/A
Discussion: Participate in the discussion titled “Command Line Versus Layer Properties Manager.”	Yes	N/A
Lab: Complete the lab titled “Using the Layer Manager Dialog Box.”	Yes	N/A
Final Exam: Prepare for the final exam.	No	5 hr

Total Out-Of-Class Activities: 20.5 Hours

MODULE 6: WORKING WITH CURVES AND CUSTOMIZATION

COURSE LEARNING OBJECTIVES COVERED

- Use Draw and Edit commands to create drawings in AutoCAD.
- Use dynamic input and shortcut menus in AutoCAD.
- Use AutoCAD's inquiry commands such as Distance and List to extract information about an existing drawing.
- Alter object properties, including layers and styles of existing drawings in AutoCAD.
- Create and edit dynamic blocks and polylines in AutoCAD.
- Apply dimensions to AutoCAD's drawings and create dimension styles.
- Populate tables with text and data stored in fields in AutoCAD.
- Create annotative styles and objects in AutoCAD.
- Reference external drawings and images.
- Use and create viewports in AutoCAD.
- Use AutoCAD commands and plot styles to set printing and plotting options.
- Apply test-taking and time management techniques.

TOPICS COVERED

- Curves and Polylines
- Customizing User Interface
- Edit Keyboard Shortcuts
- Managing and Sharing Drawings
- Adding Hyperlinks

MODULE LEARNING ACTIVITIES	GRADED	OUT-OF-CLASS TIME
Reading: Omura & Benton, Chapters 18, 24, and 25.	No	9 hr
Lesson: Study the lesson for this module.	No	1.5 hr
Discussion: Participate in the discussion titled "Understanding Polylines."	Yes	N/A
Final Exam: Take the final exam.	Yes	N/A

Total Out-Of-Class Activities: 10.5 Hours

EVALUATION AND GRADING

EVALUATION CRITERIA

The graded assignments will be evaluated using the following weighted categories:

CATEGORY	WEIGHT
Lab	30%
Quiz	10%
Mid-Term Exam	15%
Final Exam	35%
Discussion	10%
TOTAL	100%

GRADE CONVERSION

The final grades will be calculated from the percentages earned in the course, as follows:

GRADE	PERCENTAGE
A (4.0)	90–100%
B+ (3.5)	85–89%
B (3.0)	80–84%
C+ (2.5)	75–79%
C (2.0)	70–74%
D+ (1.5)	65–69%
D (1.0)	60–64%
F (0.0)	<60%

LEARNING MATERIALS AND REFERENCES

REQUIRED RESOURCES

COMPLETE TEXTBOOK PACKAGE

- Omura, G., & Benton, B. (2014). *Mastering AutoCAD 2015 and AutoCAD LT 2015 (1st ed.)*. Hoboken, NJ: John Wiley and Sons, Inc.

RECOMMENDED RESOURCES

- Books and Professional Journals
Richard, P., & Fitzgerald, J. (2014). *Introduction to AutoCAD 2015: A modern perspective (1st ed.)*. Upper Saddle River, NJ: Prentice Hall.
- ITT Tech Virtual Library (accessed via Student Portal | <https://studentportal.itt-tech.edu>)
 - Basic Search> Browse> Browse by Format> Books> Books 24x7> Search>
 - Gladfelter, D. (2014). *AutoCAD LT 2015: No experience required*. Sybex.
 - Hamad, M. M. (2015). *AutoCAD 2015 beginning and intermediate*. Mercury Learning.
 - School of Study> School of Drafting and Design> Databases> Ebrary> Search>
 - Jacobs, L. F., & Hyman, J. S. (2013). *Professors' guide: Secrets of college success (2nd ed.)*. Somerset, NJ: John Wiley & Sons.
 - Rozakis, L. (2002). *Test taking strategies & study skills for the utterly confused*. Blacklick, OH: McGraw-Hill Professional Publishing.
 - Tracy, E. (2006). *Student's guide to exam success (2nd ed.)*. Buckingham, GBR: Open University Press.

- Other References
 - Autodesk
 - www.autodesk.com
 - <http://au.autodesk.com/au-online/classes-on-demand/class-catalog/2012/autocad/compelling-tips-and-techniques-for-passing-the-new-autocad-2013-certification-exams-part-1#chapter=0>
 - <http://au.autodesk.com/au-online/classes-on-demand/class-catalog/2012/autocad/compelling-tips-and-techniques-for-passing-the-new-autocad-2013-certification-exams-part-2#chapter=0>
 - http://images.autodesk.com/adsk/files/Autodesk_AutoCAD_Civil_3D_2015_Certification_Roadmap.pdf
 - http://images.autodesk.com/apac_anz/files/prof_cert_q_a_11v6.pdf
 - Cad notes
 - www.cad-notes.com
 - Caddigest
 - www.caddigest.com
 - Grabcad
 - www.grabcad.com

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INSTRUCTIONAL METHODS AND TEACHING STRATEGIES

The curriculum employs a variety of instructional methods that support the course objectives while fostering higher cognitive skills. These methods are designed to encourage and engage you in the learning process in order to maximize learning opportunities. The instructional methods include but are not limited to lectures, collaborative learning options, use of technology, and hands-on activities.

To implement the above-mentioned instructional methods, this course uses several teaching strategies, such as interactive lessons and practice exams and quizzes. Your progress will be regularly assessed through a variety of assessment tools including discussion, lab, quiz, mid-term exam, and final exam.

OUT-OF-CLASS WORK

For purposes of defining an academic credit hour for Title IV funding purposes, ITT Technical Institute considers a quarter credit hour to be the equivalent of: (a) at least 10 clock hours of classroom activities and at least 20 clock hours of outside preparation; (b) at least 20 clock hours of laboratory activities; or (c) at least 30 clock hours of externship, practicum or clinical activities. ITT Technical Institute utilizes a “time-based option” for establishing out-of-class activities which would equate to two hours of out-of-class activities for every one hour of classroom time. The procedure for determining credit hours for Title IV funding purposes is to divide the total number of classroom, laboratory, externship, practicum and clinical hours by the conversion ratios specified above. A clock hour is 50 minutes.

A credit hour is an artificial measurement of the amount of learning that can occur in a program course based on a specified amount of time spent on class activities and student preparation during the program course. In conformity with commonly accepted practice in higher education, ITT Technical Institute has institutionally established and determined that credit hours awarded for coursework in this program course (including out-of-class assignments and learning activities described in the “Course Outline” section of this syllabus) are in accordance with the time-based option for awarding academic credit described in the immediately preceding paragraph.

ACADEMIC INTEGRITY

All students must comply with the policies that regulate all forms of academic dishonesty or academic misconduct. For more information on the academic honesty policies, refer to the Student Handbook and the School Catalog.

INSTRUCTOR DETAILS

Instructor Name	
Office Hours	
Contact Details	

(End of Syllabus)