

Minnesota

Articulated College Credit (ACC) Agreement

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Articulated College Credit Agreement

Through Articulated College Credit (ACC), specific college curriculum learning outcomes and assessments are embedded in participating high school career and technical education (CTE) programs as specified in this agreement. Relevant knowledge, skills, and standards are taught by qualified CTE high school instructor(s) in one or more courses. ACC is awarded if the student meets the college equivalency standards and later enrolls in the college(s) listed below requiring the course in a specific program. In some cases, credit toward electives is also an option.

Agreement Name MN Basic 2D Drafting (CAD)
Agreement Reviewed/Revised Fall 2024

These credits are valid for students in grades 9-12 for 5 years from the completion of this course.

College	College Course	College Programs	Articulated College Credit
Hennepin Technical College	ENG 1100 – AutoCAD	Engineering CAD Technology (A.A.S. – 72 cr.; Diploma – 64 cr.)	2 credits (2 lecture – 32 hrs.) of 4 total credits (4 lecture)
South Central College	CTLS 1110 Basic AutoCAD Or BDET 1150 AutoCAD	*Civil Engineering Technology (A.A.S. – 60 cr.) Or *Architectural Drafting & Design (Diploma – 32 cr.)	2 credits of 3 total credits Or 1 credit of 2 total credits
Rochester Community & Technical College	CAD 2500 CAD Software & Standards		1 credit of 2 total credits

Course Description

This course consists of setting up a drawing environment, creating geometric shapes, creating text, dimensioning drawings, manipulating and editing displays, plotting drawings, and retrieving entity data. Aspects of file management are also covered. The student will get 'hands-on' instruction using the latest release of AutoCAD.

Course Learning Outcomes

To complete these requirements, students will:

1. Identify the components of a CAD system
2. Draw basic shapes
3. Set up a drawing environment
4. Organize drawings with layers
5. Manipulate the display of drawings
6. Use plotting options to obtain a scaled print
7. Apply object snaps to drawing elements
8. Create geometric constructions
9. Contrast text creation methods
10. Prepare drawing tables
11. Modify existing drawing geometry
12. Obtain drawing information
13. Compare polylines, multi-lines and splines
14. Create dimensions on a drawing
15. Modify dimension styles
16. Apply cross-hatching to drawings
17. Create drawing symbols (blocks)

Curriculum Content Objectives

To receive credit, students will meet 80% of the following content objectives:

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| 1. Describe graphic screen components | 26. Use TRIM/EXTEND commands |
| 2. Make geometrical objects | 27. Use STRETCH command |
| 3. Make POLYLINES | 28. Use SCALE command |
| 4. Change system variables * | 29. Use MOVE command |
| 5. Format/Use/Save text styles ** | 30. Use MTEXT and DTEXT commands |
| 6. Format drawing setup | 31. Use MIRROR command |
| 7. Make layer settings | 32. Use COPY command |
| 8. Use key command shortcuts *** | 33. Use INSERT command |
| 9. Use all selection sets | 34. Use layers |
| 10. Create Dimension Styles | 35. Use paper space/model tabs |
| 11. Use coordinates: absolute, relative, polar | 36. Use Windows Management files |
| 12. Use direct distance entry | 37. Use Options Dialogue Box |
| 13. Use OBJECT SNAP commands | 38. Use Spell Check |
| 14. Use GRID | 39. Create ATTRIBUTES |
| 15. Use SNAP | 40. Create BLOCKS, WBLOCKS |
| 16. Use GRIPS | 41. Create and Edit VIEWPORTS |
| 17. Use ZOOM/PAN commands | 42. Creating and Editing Layout Spaces |
| 18. Use DESIGN CENTER | 43. Modify object properties |
| 19. Use POLAR TRACK | 44. Modify Dimensions styles |
| 20. Use OTRACK | 45. Place and edit dimensions |
| 21. Use HELP command | 46. Edit ATTRIBUTES |
| 22. Use INQUIRY commands | 47. Edit POLYLINES |
| 23. Use ARRAY command | 48. Edit CAD objects |
| 24. Use BREAK command | 49. Draft multi-view drawing(s) |
| 25. Use OFFSET command | 50. PLOT/print to scale |

Software Version

Software Package that meets these learning outcomes.

Please complete/fill in the blank as to which software package is utilized in your classroom:

Definitions (For Instructor Use):

***Change System Variables:** Control the operation of AutoCAD by changing system variables such as UCSICON, LTSCALE, MIRRTEXT, etc.

****Create/Use/Save text styles:** Use the STYLE command to create text style settings and use them in making drawing text.

*****Use Key command shortcuts:** Use the two and three-letter command aliases (at least the commonly used commands) in preference to using toolbar icons, typing whole command names, or using pull-down menus. Use = Demonstrating ability

Assessments

Mastery of **80% or higher of at least 50% of the course learning outcomes listed above** will meet the college credit requirement.

Text for Reference:

Check with the college bookstore for current textbooks.

Recommended Industry-Recognized Certifications or Comprehensive Assessments – High School & College

Certifications/ Assessments	Vendors	Other Information
CAD Mechanical Design II (662)	Precision Exams	www.precisionexams.com
Introduction to Engineering	Project Lead the Way (PLTW)	www.pltw.org
AutoCAD Certified User	AutoDesk	www.autodesk.com
AutoCAD Certified Professional	AutoDesk	www.autodesk.com