

Minnesota

Articulated College Credit (ACC) Agreement

www.CTEcreditMn.com

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 course. 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: Blueprint Reading – Manufacturing Technology

Agreement Reviewed/Revised: 2023 – 2024

These credits are valid for students in grades 10-12 for 5 years from the completion of this course.

College(s)	College Course(s)	College Programs	Articulated College Credit
Anoka Technical College	MACH 1132 – Blueprint Reading	CNC Design & Manufacturing Technology (A.A.S.- 69 cr.; Diploma – 64 cr.); Machine Technology (Certificate 1–16 cr.)	3 credits of 3 total credits (48 hrs. lecture)
Hennepin Technical College	MACH 1056 – Blueprint Reading I	Tool & Die Mold making (A.A.S. – 72 cr.; Diploma – 64 cr.) Computer Numerical Control (CNC) Technician (A.A.S. – 72 cr.; Diploma – 64 cr.)	2 credits (32 hrs. lecture) of 3 total credits (48 hrs. lecture)
St. Cloud Technical & Community College	MACH 1517 – Blueprint Reading I	CNC & Advanced Manufacturing (A.A.S. – 60 cr; Diploma – 54 cr.)	1 credit of 1 total credit (15 hrs. – 1 lab)

Course Description

This course covers basic blueprint reading and principles. Topics included are the alphabet of lines, one, two and three-view drawings, dimensioning, tolerancing, symbols, sketching, incline surfaces, circular features, sectional views, surface texture, and auxiliary views.

Curriculum Learning Outcomes

100% of the curriculum learning outcomes will be covered in the high school course(s) by qualified CTE high school instructor(s).

Upon completion of the course, the student will be able to:

1. Demonstrate professional behavior
2. Describe angular dimensions
3. Describe angular tolerances
4. Describe auxiliary views
5. Describe base line dimensioning
6. Describe blueprint symbols
7. Describe bolt circle dimension
8. Describe bosses and pads

9. Describe cutting plane lines
10. Describe decimal tolerances
11. Describe fillets and rounds
12. Describe fractional tolerance
13. Describe hole dimensions
14. Describe projection lines
15. Describe section lining symbols
16. Describe surface texture symbols
17. Describe tabular dimensioning
18. Explain I.S.O. first and third angle projection
19. Explain orthographic projection
20. Explain surface texture terminology
21. Identify full and half sections
22. Identify missing views
23. Identify removed and revolved sections
24. Identify section lines
25. Interpret cylindrical drawings
26. Interpret metric thread specifications
27. Interpret one, two, and three view drawings
28. Interpret screw thread specifications (U.S.)
29. Interpret taper specifications
30. Sketch missing views
31. Sketch three view prints
32. Translate identification box information

Core College Competencies: Communication, Problem Solving, Interact

Course requires students demonstrate competency in one or more of the Core College Competencies: Communicate effectively, Problem Solve, Interact in complex, dynamic environments.

Text for Reference

- ☐ Interpreting Engineering Drawings; Jensen Cecil H., Helsel, Dr. Jay D.; Thomson/Delmar Learning
- ☐ Blueprint for Machinists, 6th Edition, Taylor, David L; Delmar Learning

Assessments

1. Written and performance tests with an **80% or better**.
2. Successful completion of the course with an **80% or better**.
 - ☐ Understand & define line usage
 - ☐ Understand & apply title block information
 - ☐ Understand & identify basic views
 - ☐ Identify & explain structural shapes
 - ☐ Understand & use weld symbols
 - ☐ Differentiate types of dimensioning

Recommended Industry-Recognized Certification or Comprehensive Assessment – High School & College

Certification/ Assessment	Vendor	Other Information
CAD Mechanical Design I (661)	Precision Exams	www.precisionexams.com
Auto CAD LT Certificate	AutoDesk	www.autodesk.com