

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 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: Machine Tool 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
Hennepin Technical College	MACH 1205 – Machine Tool Technology	Manufacturing Engineering Technology (A.A.S. – 60 cr.); Manufacturing Technician (Cert. – 30 cr.)	2 credits of 3 credits (2 cr. lecture – 32 hrs./ 1 cr. lab – 32 hrs.)
St. Cloud Technical & Community College	MACH 1503 – Machine Tool Technology I	CNC & Advanced Manufacturing (A.A.S. – 60 cr.; Diploma – 54 cr.) OR	3 credits (1 cr. lecture -16 hrs./ 2 cr. lab – 64 hrs.) of 4 total credits (1 lecture/ 3 lab)
	TECH 1550 – Basic CADD	CNC & Advanced Manufacturing (A.A.S. – 60 cr.; Diploma – 54 cr.)	2 credit (1 cr. lecture – 16 hrs./ 1 cr. lab – 32 hrs.) of 2 total credit

Course Description

This course will cover first level instruction in the setup and operation of common machine tools as well as the use of hand and precision tools. Machining of projects will begin with basic cutoff saw, lathe, milling machine and drill press setup and operation. Complimentary skills will be demonstrated in off-hand grinding and bench work operations.

Course Learning Outcomes

1. Completion of milling projects on vertical mill.
2. Completion of various lathe operations on the engine lathe.
3. Completion of bench projects utilizing hand tools.
4. Understand the importance of proper machine setup.
5. Proficiency using band saws to rough cut machining projects.
6. Completion of drilling projects on metal working equipment.
7. Proficiency in operation and set up of pedestal grinder.
8. Proficiency in using linear measuring tools such as rules, micrometer, and vernier and digital calipers.
9. Application of safe work habits around all metalworking equipment and co-workers.

Assessments

See CTECreditMN.com website for SAMPLE assessments.

Students will also successfully demonstrate all performance outcomes as stated on the Assessment checklists available at www.ctecreditmn.com . Mastery of 75% of the checklist will meet the college credit requirement.

Text for reference:

- SCTCC: Krar, Steve & Check, Albert: Technology of Machine Tools 7th Ed. McGraw Hill. ISBN: 13: 978-0-07-830722-5
- Machinery's Handbook. Most Current Ed. Industrial Press Inc. NOTE: High School faculty may choose their own text.

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

Certification/ Assessment	Vendor	Other Information
Machining II	Precision Exams	www.precisionexams.com
TBD	NOCTI	www.nocti.org
TBD	Project Lead the Way	www.pltw.org