



Discipline: Manufacturing and Product Development
Date Submitted: September 13th, 2023

**Cerritos College
 Articulation Agreement**

<p>Cerritos College Course: MTT 100 - Machine Tool Introduction</p> <p>Cerritos College 11110 Alondra Blvd. Norwalk, CA 90650</p>	<p>High School Course: Machining/Forming Technologies I</p> <p>Warren High School 8141 De Palma St. Downey, CA 90241</p>
<p>General Course Description: This course is designed as a survey of machine tool technology. Student focus is on traditional machine tool technologies. Coursework includes set-up and operation of the engine lathe, the milling machine, the drill press, and sawing and cutoff machines. Additional topics incorporate calculation and setup of speeds and feeds, and measurements.</p> <p>This concentrator course provides students with concepts and experiences required for career readiness and pursuing further education in the Machining and Forming Technologies career pathway. This concentrator course leads to the capstone course in the Machining and Forming Technologies pathway's sequence of courses.</p>	
<p>College Prerequisite(s): none</p>	<p>HS Prerequisite(s): none</p>
<p>Advisories/Recommendations: none</p>	
<p>Course Content:</p> <p>Introducing machining and machine tool technology.</p> <ol style="list-style-type: none"> 1. Apply industry-standard safety practices and specific safety requirements for different machining operations 2. Perform setup of manual machines such as band saw, lathe, mill, and drill press 3. Perform basic operation of a CNC lathe and mill <p>Exploring the basic use and characteristics of common cutting tools and fluids.</p> <ol style="list-style-type: none"> 1. Demonstrate an understanding that different materials require different feeds and speeds 2. Use a band saw to cut raw material 3. Perform basic operations on a drill press 4. Perform basic operations on the mill 5. Perform basic operations on the lathe 	

Learning and practicing using precision measuring instruments.

1. Use a dial caliper to measure parts
2. Calculate necessary tolerances to plan for machine sequences
3. Practice reading a Vernier micrometer
4. Inspect previously produced parts to ensure completion per blueprint requirement
5. Define acceptance and non-acceptance of parts and parts characteristics

Calculating set up speeds and feeds for machine tools.

1. Set up basic feeds and speeds on machines
2. Calculate adjust speed, feed, and other parameters to properly produce a part

Converting engineering drawings to finished products utilizing manual and automated machining methods.

1. Interpret blueprint information and translate into actionable items
2. Produce a workpiece within tolerances of the blueprint using a CNC milling machine
3. Inspect the produced part to ensure completion per blueprint requirement

Exploring Advanced Manufacturing careers.

1. Companies and jobs
2. Career pathways
3. Certification and continuing education
4. Job search and interview preparation

Competencies and Skill Requirements.

At the conclusion of this course, the student should be able to:

- Read basic blueprints given in MTT 100
- Know what tools to use to machine the types of parts in MTT 100
- Demonstrate safety principles in machine tool technology
- Set up basic feeds and speeds on machines
- Identify different materials required different feeds and speeds
- Use a dial caliper to measure parts made in MTT 100
- Demonstrate reading a Vernier micrometer
- Use a bandsaw to cut raw materials needed in MTT 100
- Perform basic operations on the lathe
- Perform basic operations on the mill

Measurement Methods (quizzes, tests, homework assignments, etc.):

- Participation
- Projects
- Final Exam
- Quizzes

Textbooks or Other Support Materials:

- Textbook: Precision Machining Technology. Peter Hoffman. Cengage Learning 3rd or current edition. January 4, 2019. ISBN 978-1337795302





Procedures for Course Articulation:

Cerritos College credit for the articulated course listed above may be received when the following criteria are met:

1. Student has completed the articulated course listed above, *Machining/Forming Technologies I* with a grade of "C" or higher.
3. Student must enroll at Cerritos College within two (2) years from the semester date in which the course was completed.
4. Student will complete and submit the Cerritos College *Petition for Credit by Examination for Articulated High School Course* form to the Office of Educational Partnerships & Programs at Cerritos College.
5. A maximum of 30 units may be awarded through credit by examination.

This Agreement will be reviewed annually and will remain in effect until cancelled by either party giving 30 days written notice.

High School/ROP District Signatures**Cerritos College Signatures**

	Nov 27, 2023		Nov 29, 2023
Instructor/Department Chair	Date	Faculty/Department Chair	Date
<i>Cari White</i>	Nov 27, 2023	 <small>Yannick Rea (Dec 1, 2023 00:41 PST)</small>	Dec 1, 2023
Principal	Date	Dean of Instruction	Date
<i>John A. Garcia, Jr.</i>	Nov 28, 2023		Dec 1, 2023
Superintendent	Date	Vice President	Date