



**CERRITOS COLLEGE  
ARTICULATION AGREEMENT**

<p><b>Cerritos College Course:</b> ET 101: Principles of Engineering Technology (3 Units)</p> <p>Cerritos College 11110 Alondra Blvd. Norwalk, CA 90650</p>	<p><b>High School Course:</b> Principles of Engineering (Project Lead the Way)</p> <p>Corona High School 1150 W 10th St. Corona, CA 92882</p>
<p><b>General Course Description:</b> This course introduces the student to the design process in engineering technology by the use of activities-based learning, project-based learning, and problem-based learning. The student will learn about the design process, geometric relationships, visualization, technical sketching, modeling, model documentation, and assemblies.</p>	
<p><b>College Prerequisite(s):</b> None</p>	<p><b>HS/ROCP Prerequisite(s):</b> None</p>
<p><b>Advisories/Recommendations:</b> Student has successfully completed “Introduction to Engineering Design”, the initial course in the PLTW Engineering Pathway.</p>	
<p><b>Course Content:</b></p> <ul style="list-style-type: none"> <li>• Engineering Career Awareness</li> <li>• Social responsibility and ethics</li> <li>• Safety practices and standards in the engineering environment</li> <li>• Communication, presentation skills and teamwork</li> <li>• Visualization and sketching techniques</li> <li>• Engineering drawings and standards</li> <li>• Mechanical systems and mechanisms</li> <li>• Basic thermodynamics</li> <li>• Fluid control and hydraulic systems</li> <li>• Control systems and feedback</li> <li>• Robotics</li> <li>• Data collection and analysis</li> <li>• Engineering units, instruments, tools and measurements.</li> <li>• Statics</li> <li>• Material properties and strengths of materials</li> <li>• Demonstrate the ability to work as a team member and collaborate in a diverse environment.</li> </ul>	

**Competencies and Skill Requirements. At the conclusion of this course, the student should be able to:**

- Define various careers available and terminology used in the fields of engineering and engineering technology
- Demonstrate an understanding of social, economical, environmental and ethical impacts of engineering
- Demonstrate safety practices and standards in the engineering environment
- Demonstrate ability to effectively communicate in writing and verbally with high-quality visual aids.
- Collaborate in a diverse environment
- Apply visualization and sketching techniques to solve engineering problems
- Create basic engineering drawings utilizing industry standards
- Create and analyze basic engineering systems (such as mechanisms, thermodynamics, fluids, electrical, control, mechanical, robotics)
- Design, assemble, program and test an autonomous robot capable of performing a teacher-assigned task.
- Acquire, analyze and interpret data
- Demonstrate proper use of various engineering instruments and tools (such as scales, calipers, micrometers, multimeters, thermometers.)
- Design and analyze basic static mechanical systems such as beams and columns
- Measure and interpret material properties using stress-strain curves.
- Demonstrate the ability to work as a team member and collaborate in a diverse environment.

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

- Projects
- Homework
- Sketches
- Worksheets
- Engineer Notebook
- Portfolio
- Tests & Final Exam
- Attendance

**Textbooks or Other Support Materials:**

**Textbooks:**

Project Lead the Way™ provides the curriculum for this course, along with all required support materials; no other textbooks are required.

**Software:**

- VEX Robotics
- Logger Pro
- VEX RobotC
- Structural Stress Analyzer 1000
- MD Solids
- Virtual Tensile Tester
- Vernier Logger Pro

- Flash Player
- National Instruments LabView
- Microsoft Office
- PLTW Learning Management System
- Inventor
- AutoCAD
- 3D Printing

**Materials:**

- Class Folder
- USB Flash Drive

**Procedures for Course Articulation:**

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

1. The student has completed the articulated course listed above, *Principles of Engineering*, with a grade of “B” or higher.
2. The student must enroll at Cerritos College within two (2) years from the semester date in which the course was completed.
3. The 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.
4. No more than 15 units of credit may be accepted for 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**

<u>Eric Lee</u> <small>Eric Lee (May 24, 2022 15:58 PDT)</small>	May 24, 2022	<u></u> <small>Miodrag Micic (May 26, 2022 08:16 PDT)</small>	May 26, 2022
Faculty/Department Chair	Date	Instructor/Division Chair	Date
<u>Ben Sanchez</u> <small>Ben Sanchez (May 24, 2022 16:51 PDT)</small>	May 24, 2022	<i>Nick Real, Ed.D.</i>	May 26, 2022
Principal	Date	Dean of Instruction	Date
<u></u>	May 26, 2022	<u></u> <small>E. (Rick) Miranda (May 26, 2022 09:24 PDT)</small>	May 26, 2022
Superintendent	Date	Vice President	Date