

Standards and Competencies for Principles of Engineering (PLTW) (Course # 5791)

	Begin-End Yr
Standard 1 - Students will explore careers available in the engineering and manufacturing areas	2009 -
1.1 - Investigate possible career paths for engineers and engineering technicians	2009 -
1.2 - Examine the potential roles and responsibilities of an engineer or engineering technician	2009 -
Standard 2 - Students will produce engineering designs for a structure	2009 -
2.1 - Create and interpret engineering designs including bills of materials	2009 -
2.2 - Evaluate drawings and material lists.	2009 -
2.3 - Create models from drawings.	2009 -
Standard 3 - Students will produce workable engineering designs according to specifications and within given constraints	2009 -
3.1 - Design a mechanism project.	2009 -
3.2 - Execute a mechanism project.	2009 -
3.3 - Design and produce an electrical circuit board.	2009 -
3.4 - Design and produce an electrical system.	2009 -
Standard 4 - Students will analyze the impact of quality on cost and productivity, product design, and manufacturing processes	2009 -
4.1 - Analyze the relationship between process management and quality assurance	2009 -
4.2 - Evaluate the effects of quality procedures on all aspects of a manufacturing system	2009 -
Standard 5 - Students will implement quality assurance (QA) inspection and testing procedures in a manufacturing environment	2009 -
5.1 - Inspect raw materials and intermediate products.	2009 -
5.2 - Inspect and test final products.	2009 -
5.3 - Design sampling plans.	2009 -
Standard 6 - Students will use statistical tools to assure quality in manufacturing processes	2009 -
6.1 - Identify types of tools, including data acquisition and measuring tools, used in quality control	2009 -
6.2 - Perform statistical procedures commonly used to monitor quality in manufacturing	2009 -
6.3 - Use statistical process control concepts to evaluate and modify manufacturing processes	2009 -
Standard 7 - Students will demonstrate leadership, citizenship, and teamwork skills required for success in the school, community, and workplace.	2009 -
7.1 - Demonstrates dignity in work.	2009 -
7.2 - Participate in SkillsUSA as an integral part of classroom instruction	2009 -
7.3 - Evaluate school, community, and workplace situations by applying problem-solving and decision-making skills.	2009 -
7.4 - Demonstrate the ability to work professionally with others	2009 -
Standard 8 - Students will perform safety examinations and maintain safety records	2009 -
8.1 - Pass with 100% accuracy a written examination relating specifically to safety issues	2009 -
8.2 - Pass with 100% accuracy a performance examination relating specifically to tools and equipment	2009 -
8.3 - Maintain a portfolio record of written safety examinations and equipment examinations for which the student has passed an operational checkout by the instructor.	2009 -