

RTTT Career and Technical Education STEM Program Descriptions

Program Title	Pathways to Engineering (PLTW) (9400300) – Civil Engineering
CTE Courses and Descriptions	<p>In this program, students are required to complete the three core courses plus their pathways course. The core courses prepare students for the rigor of the pathways courses.</p> <p>Principles of Engineering (8600520) Introduction to Engineering Design (8600550) Digital Electronics (8600530)</p> <p>Civil Engineering and Architecture (8600590) – In this program, students use state of the art software to solve real-world problems, covering topics such as the roles of civil engineers and architects, project planning, site planning, building design, and project documentation and presentation.</p>
Integrated Core Course(s)	Algebra 1
Teacher Certification(s)	<p>Technology Education (TECH ED 1 @2) Engineering (ENG 7 G) Teacher must complete Project Lead The Way training for each course.</p>
Industry Certification(s)	<p>Autodesk Certified Associate – AutoCAD (ADESK016) Autodesk Certified Associate – AutoCAD Civil 3D (ADESK018) Autodesk Certified Associate – AutoCAD Inventor (ADESK019) Autodesk Certified Associate – AutoCAD Revit Architecture (ADESK020)</p>
Number of Articulated Credits	None, although there are a number of universities and technical colleges nationwide that grant credit for completion of the PLTW curriculum. The University of South Carolina offers 3 semester hours of college credit per course for Introduction to Engineering Design, Principles of Engineering, and Digital Electronics.
Implementation Costs	<p>Startup Costs (approximate): \$80,000 This is a turnkey 20-seat estimate and includes computers, software, peripheral equipment, furniture, course-specific equipment, textbooks, and training for one teacher. This estimate does not include any instructional technology items such as smart boards, computer projection devices, etc.</p> <p>Recurring Costs (approximate): \$8,000 This includes software lease renewals and replacement consumables.</p>
Recommended Feeder Programs/Course	<p>It is recommended that districts also implement Gateway to Technology (GTT), an activities oriented PLTW middle school program to engage students and ensure their readiness for the Pathways to Engineering program. Taught in conjunction with a rigorous academic curriculum, this program consists of the following independent nine-week units: <i>Design and Modeling, Magic of Electrons, Science of Technology, Automation and Robotics, Flight and Space, and Energy and the Environment.</i></p> <p>Startup Costs (approximate): \$105,000 This is a turnkey 26-seat estimate and includes computers, software, peripheral equipment, furniture, course-specific equipment, textbooks, and training for one teacher. This estimate does not include any instructional technology items such as smart boards, computer projection devices, etc.</p> <p>Recurring Costs (approximate): \$2,400 This includes software lease renewals and replacement consumables.</p>
	<p>Districts are encouraged to incorporate the PLTW Aerospace Engineering curriculum for grades 3-5 students. Additional engineering activities will be made available students in grades K-2 to complete the Florida K- 16 STEM pipeline.</p> <p>Startup Costs (approximate): \$50,000 This estimate does not include any instructional technology items such as smart boards, computer projection devices, etc.</p> <p>Recurring Costs (approximate): \$2,000 This includes replacement consumables.</p>