Engineering Essentials *(1 year)*
This course offers a multidisciplinary approach to teaching and learning foundational concepts of engineering practice, providing students opportunities to explore the breadth of engineering career opportunities and experiences and solve engaging and challenging real-world problems. By inspiring and empowering students with an understanding of engineering and career opportunities, Engineering Essentials broadens participation in engineering education and the engineering profession.

Introduction to Engineering Design *(1 year)*
Students dig deep into the engineering design process applying a variety of engineering concepts such as material selection, human-centered design, manufacturability, and sustainability to hands-on projects. They work both individually and in teams to design solutions to a variety of problems using 3-D modeling software and additive manufacturing.

Principles of Engineering *(1 year)*
A classic PLTW course updated with modernized software, equipment, and engineering content. Students will be challenged with engaging problems in a broad range of engineering topics including product design, robotics, mechanical design, as well as infrastructure and sustainability. Students develop skills in problem solving, research, and design while learning strategies for design process documentation, collaboration, and presentation.

Aerospace Engineering *(1 year)*
This course propels students' learning in the fundamentals of atmospheric and space flight. As they explore the physics of flight, students bring the concepts to life by designing an airfoil, propulsion system, and rockets. They learn basic orbital mechanics using industry-standard software. They also explore robot systems through projects such as remotely operated vehicles.

Civil Engineering and Architecture *(1 year)*
Students learn important aspects of building and site design and development. They apply math, science, and standard engineering practices to design both residential and commercial projects and document their work using 3-D architectural design software.

Computer Integrated Manufacturing *(1 year)*
Manufactured items are part of everyday life, yet most students have not been introduced to the high-tech, innovative nature of modern manufacturing. This course illuminates the opportunities related to understanding manufacturing. At the same time, it teaches students about manufacturing processes, product design, robotics, and automation. Students can earn a virtual manufacturing badge recognized by the National Manufacturing Badge system.

Computer Science Principles *(1 year)*
Using Python® as a primary tool, students learn the fundamentals of coding, data processing, data security, and task automation, while learning to contribute to an ethical computing culture. The course promotes computational thinking and coding fundamentals and introduces computational tools that foster creativity. Computer Science Principles helps students develop programming expertise and explore the workings of the Internet. Projects and problems include app development, visualization of data, cybersecurity, and simulation. PLTW is recognized by the College Board as an endorsed provider of curriculum and professional development for AP® Computer Science Principles (AP CSP). This endorsement affirms that all components of PLTW CSP's offerings are aligned to the AP Curriculum Framework standards and the AP CSP assessment.

Digital Electronics *(1 year)*
From smartphones to appliances, digital circuits are all around us. This course provides a foundation for students who are interested in electrical engineering, electronics, or circuit design. Students study topics such as combinational and sequential logic and are exposed to circuit design tools used in industry, including logic gates, integrated circuits, and programmable logic devices.

Environmental Sustainability *(1 year)*
In Environmental Sustainability, students investigate and design solutions in response to real-world challenges related to clean and abundant drinking water, food supply, and renewable energy. Applying their knowledge through hands-on activities and simulations, students research and design potential solutions to these true-to-life challenges.

PLTW Capstone *(1 year)*
Students engage in an open-ended research experience in the PLTW Capstone course, a culminating program for those completing PLTW's high school offerings. They collaborate in teams, designing and developing original solutions to well-defined and justified real-world problems.