

Students will use computer-aided instruction along with hands on activities in the lab. Students will be required to take the CompTIA A+ exam through a VUE testing center.

Cisco Discovery I A/B

2 Trimesters - 1 Credit

Recommended Grade Level: 10 - 12

Prerequisite: CompTIA A+ (A+ Certification)

This course uses semester one and two of the Cisco Certified Network Associate curriculum. The course is the first half of a two-semester course that must be followed by Cisco Discovery II. Material covered includes: OSI model, LANs, WANs, Network Design, routers, router configuration, networking protocols, network troubleshooting, and network management. The course prepares students for the Cisco Certified Network Associate certification and the Comptia Net + certification. Students will use the Cisco CCNA Discovery Curriculum.

Cisco Discovery II A/B

2 Trimesters - 1 Credit

Recommended Grade Level: 11 - 12

Prerequisite: Computer Tech I

This course is the second half of the Cisco Certified Network Associate curriculum and includes semesters two and three. Material covered includes: LAN security, VLANs, LAN design, IGRP, ACLs, Novell IPX, WANs, WAN design, PPP, ISDN, Frame Relay, and network management. The course prepares students for the Cisco Certified Network Associate certification and the Comptia Net + certification. Students will be required to take the CCNA certification exam through a VUE testing center at the completion of the course.

Computer Programming A/B

2 Trimesters - 1 Credit

Recommended Grade Level: 10 - 12

Prerequisite: Algebra I (Recommended for students with a C average and above in Algebra I)

Computer Programming introduces the student to or continues the development of concepts related to programming with special focus on reading and writing data, control structures, structure by modularizing programs, loop structures, debugging and testing programs, and data files.

Special Topics in Computer Programming A/B

2 Trimesters - 1 Credit, 1 Trimester ½ Credit

Recommended Grade Level: 11 - 12

Prerequisite: Algebra II and Computer Programming

This course is designed for the student who has an understanding of Basic Programming. The student will learn to use Visual Basic as a programming language. Visual

Basic is an excellent course for students considering majoring in computer science or interested in building their resume for the job market. Business and industry have adopted Visual Basic as an easy-to-use alternative to C++. Its ability to create Windows applications with ease and speed has made it a natural for the work environment.

Project Lead the Way Engineering (Science and Math Career Cluster) Pre-Engineering Major

Visit www.PLTW.org for more information

All PLTW high school courses have several underlying content areas in common. As students progress through the sequence they will become proficient in:

- Working as a contributing member of a team
- Leading a team
- Using appropriate written and/or visual mediums to communicate with a wide variety of audiences
- Public speaking
- Listening to the needs and ideas of others
- Understanding the potential impact their ideas and products may have on society
- Thinking
- Problem solving
- Managing time, resources and projects
- Researching
- Going beyond the classroom for answers
- Data collection and analysis
- Preparing for two-and four-year college programs

PLTW's curriculum makes math and science relevant for students. By engaging in hands-on, real-world projects, students understand how the skills they are learning in the classroom can be applied in everyday life. This approach is called activities-based learning, project-based learning, and problem-based learning or APPB-learning.

Research shows that schools practicing APPB-learning experience an increase in student motivation, an increase in cooperative learning skills and higher-order thinking, and an improvement in student achievement.

Activities are a method of instruction that involves directed teaching of a particular process or procedure. Activities engage students in learning skills that are later applied in more complex situations. Activities lead students to higher levels of learning.

Project-based learning is a comprehensive approach to instruction that presents a project or relevant activity that

enables students to synthesize knowledge and to individually resolve problems in a curricular context. Problem-based learning is both a curriculum organizer and an instructional strategy that presents a problem, which is relevant and related to the context where students are the stakeholders. Students synthesize and construct knowledge to help them actively grapple with the complexities of the problem and develop strategies to direct their own learning. When students experience a problem in context, they are more likely to make connections and thus see the value in what they are learning. For more information on the PLTW curriculum go to their website at <http://www.pltw.org>.

FOUNDATION COURSES

Introduction to Engineering Design A/B

2 Trimesters - 1 Credit

Recommended Grade Level: 9-12

Prerequisites: None

This course teaches problem-solving skills using a design development process. Models of product solutions are created, analyzed and communicated using solid modeling computer design software. Popular projects are Puzzle cube creation and 3-D computer drawings using Autodesk Inventor.

Principles of Engineering A/B

2 Trimesters - 1 Credit

Recommended Grade Level: 9-12

Prerequisites: None

This course helps students understand the field of engineering/engineering technology. Exploring various technology systems and manufacturing processes help students learn how engineers and technicians use math, science and technology in an engineering problem solving process to benefit people. The course also includes concerns about social and political consequences of technological change. Popular projects are model bridge construction, simple machines project, and Fischer Tech Electronics Kit Marble Sorter.

Digital Electronics A/B

2 Trimesters - 1 Credit

Recommended Grade Level: 9-12

Prerequisites: None

This course focuses on applied logic that encompasses the application of electronic circuits and devices. Computer simulation software is used to design and test digital circuitry prior to the actual construction of circuits and devices. Popular projects are BOBOTs electronic robots.

Technology Education course descriptions are continued on page 23.