Engineering & Technology

Engineer Your World I

1 Full Year
1 Credit Hour
Grades: 9, 10, 11, 12
Prerequisite: 'B' or better in all previous science and math courses including Algebra I; and permission of instructor.

Elective:
This course is designed for the student who plans or is thinking of pursuing Engineering in college. Dual-enrollment is offered through the University of Texas – Austin. Students will discover an engineering design process in a project-based environment and be exposed to a variety of engineering disciplines by engaging in socially relevant design challenges. Disciplinesinclude, but are not limited to, chemical engineering, computer engineering, and aeronautical engineering. Projects will cover aspects of the engineering design process such as reviewing customer needs, working with data, and reverse engineering. Projects will use technology such as software programs, sensors, and microcontrollers. This course serves as a prerequisite to allfuture engineering classes.

Engineer Your World II

1 Full Year
1 Credit Hour
Grades: 10, 11, 12
Prerequisite: 'B+' or better in Engineer Your World I; 'B' or better in all previous science and math courses; and permission of instructor.

Elective: This course is designed for the student who plans or is thinking of pursuing Engineering in college. Dual-enrollment is offered through the University of Texas – Austin. Students will utilizethe design process discovered in EYW I in a project-based environment to engage with more socially relevant design challenges. All projects will require programming Raspberry Pis using the Python programming language. Project scenarios include an autonomous robot and motioncapture to gauge the effectiveness of a physical therapy regime.

Engineer Your World III

1 Full Year
1 Credit Hour
Grade: 11, 12
Prerequisite: Engineer Your World I/Engineer Your World II

Elective: This senior capstone design course is intended for the student who plans or is thinking of pursing Engineering in college. This course will be an authentic, project-based engineering course. Students will work in teams to identify a need in their community and apply the engineering design process to address that need. This student-driven, special-projects coursewill give students the opportunity to apply the skills developed in previous engineering coursesin an open world environment. The outcome of this course will consist of a portfolio that students can showcase.

Explorations in Electrical Engineering

1 Semester
½ Credit Hour
Grades: 10, 11, 12
Prerequisite: 'B+' or better in Engineer Your World I; 'B' or better in all previous science and math courses; and permission of instructor.

Elective: This course is designed for the student who plans or is thinking of pursuing Engineering or Computer Science in college. Students will learn about the components and low-level programming of a computer. Analog and digital circuits be touched on. Students will incorporatethe design process from EYW I along microcontroller / sensor systems to embody solutions for scenarios presented in class.

Introduction to Engineering Prototyping

1 Semester
½ Credit Hour
Grades: 10, 11, 12
Prerequisite: 'B+' or better in Engineer Your World I; 'B' or better in all previous science and math courses; and permission of instructor.

Elective: This course is designed for the student who plans or is thinking of pursuing Engineering in college. The course will incorporate the design process from EYW I along with engineeringgraphics to embody solutions to scenarios presented in class. Topics include drafting; 3D modeling;3D printing; circuits.

Introduction to Computer Science

1 Semester
½ Credit Hour
Grades: 9, 10, 11, 12
Prerequisite: 'B' or better in all previous science and math courses and permission of instructor.

Elective: This course is designed for the student who plans or is thinking of pursuing Engineering or Computer Science in college. Students will study the use of the Python programming languageto complete a semester long project. This project will include creative writing. This course is a prerequisite to all AP Computer Science classes.

AP Computer Science

1 Full Year
1 Credit Hour
Grades: 10, 11, 12
Prerequisite: Completion of Introduction to Computer Science with a 'B+' or better; 'B' or better in all previous science and math courses; Algebra I; and permission of instructor.

Elective: This course is for students who plan on or are thinking of majoring in a STEM field in college and focuses on development of computer programs and logic. Students are required to take boththe AP Computer Science A and AP Computer Science Principals exams. Students will learn and expand their skills in coding by analyzing, writing, and testing programs as concepts are explored. Topics include data organization and algorithmic thinking. Students will utilize the Java programming language. Creative problem solving; how to apply computational processes in order to analyze big data, programming; how the

internet works; how we innovation can spanacross fields; and the impact on society of computing innovations. Students will receive credit on their transcript for both AP Computer Science A and AP Computer Science Principals.

Computer Applications

1 Semester
½ Credit Hour
Grades: 9
Fee: $15
Prerequisite: None

Elective: This course helps freshmen achieve a base level understanding of several Microsoft Office 365 applications that will aid in their high school career. The objectives will be achieved through projects to support other classes material, content, or outside interests. Once skills in Word, Excel, and Powerpoint are gained students will shift into other realms of computer applications such computer drawing. At the end of the semester, students will be introduced to computer science with the aid of a block style programming language.

Engineering and Technology History

1 Semester
½ Credit Hour
Grades: 9
Fee: $15
Prerequisite: Enrollment in Honors Biology and/or an Honors Math Course; instructor permission.

This course is designed for the student who plans or is thinking of pursuing Engineering in college. The student will explore the engineering & technology of various cultures and time periods through articles & discussions. As a hands-on project-based class the student will be empowered to explore various facets of engineering & technology and build their version.

Advanced Topics in Computer Science

1 Semester
½ Credit Hour
Grades: 11, 12
Prerequisite: An 85% in AP Computer Science or minimum of a 3 on the AP Computer Science Courses

This project-based, semester course is for juniors and seniors to be taken after completion of AP Computer Science. As a repeatable course, students will have opportunities to continue, refine, and build their skillsets in topics such as graphics; game design; mobile applications; data analysis; and cyber security.