SCHOOL OF ENGINEERING AND TECHNOLOGY

OUR MISSION

To help discern God's call on students in the field of Engineering and Technology through curricular enhancement, mentoring relationships, and educational experiences.

THE PROGRAM

The School of Engineering Technology (SOET) at CVCA is a two-year curriculum designed to challenge high school students to be successful, impactful Christians in an undergraduate engineering or technology program. The curriculum touches on major engineering and technological disciplines and allows students to dive deeper into areas of interest through individualized projects, guest lectures, Jterm/Mterm internships, and mentoring relationships from area universities and companies.

THE APPLICATION PROCESS

Students must apply for acceptance into the School of Engineering and Technology during the first semester of their sophomore year. Due to a limited number of spaces available in the SOET, it is best to submit your application as soon as possible.

1. Fill out SOET Application with teacher references.
2. Interview with SOET Chair.
3. Once accepted to the SOET, schedule classes with the Guidance Office.

REQUIREMENTS

Students must pass each class to continue in the program.

Year 1: Introduction to Engineering and Technology I and II

Introducing engineering, applied technology and computer science. Students learn the engineering process and are introduced to skills and technology in the engineering and computer science fields. Students are trained in CAD modeling, Basic Electronics, Python, Soldering, 3D printing, machine shop and more. This class consists of smaller projects within each unit, and a group project capstone at the end of the year.

Computer Science Course Offerings

Course 1: Mechatronics Engineering Technology and Biomimicry

Integrating engineering and robotic design to create innovative solutions. A hands-on course where students study God's creation to apply design, thinking, research, and prototyping to aid in problem solving.

Course 2: Cybersecurity and Game Design Principles

Exploring emerging technologies and learning about critical systems and frameworks to safeguard against. Studying ethical practices and A.I. modeling for new technologies. Students also study game design principles such as UX and UI to help design a 2D game.

SCHOOLS OF DISTINCTION

Schools of Distinction provide an innovative opportunity for CVCA students.

Designed for juniors and seniors, the two-year curriculum exposes students to professional fields and potential majors.

This program is in addition to CVCA's already rigorous college prep curriculum.

The Mission of all Schools of Distinction is:

"To expose our students to professional fields through...

- Curricular enhancements (extra classes in a specific field)
- Mentoring relationships and community partnerships (mentoring, community projects, field trips, etc.)
- Experiential learning (internships, shadowing, competitions, guest lecturers, projects, etc.)

...providing insight into His calling in their lives."



Engineering Course Offerings

Applied Engineering: Mechanical, Civil and Electrical

This class builds on year one, focusing on larger projects related to mechanical, civil and electrical engineering. Students gain proficiency in 3D printing, working with the tools in our shop, CAD modeling, and electronic assembly.

Applied Engineering: Aerospace, Polymer and Biomedical

Introduction to several of the next most common types of engineering. This class continues with larger projects and incorporates a research project. Students get both practical experience in these engineering fields as well as learning about the latest advancements in these fields.

CAPSTONE PROJECT

The SET (SOET) capstone is completed by each student during the second semester of their senior year. This does not have to coincide with a class they are currently enrolled in, but should demonstrate what they have learned in their two years in the program. Capstone projects must be approved by the Director of the School of Distinction. Some class time may be given to work on capstone projects, but it is expected that students will invest time outside of class to complete their project. The capstone project consists of a full Design History File as well as the project itself. Students should expect to commit at least 30 hours to their capstone projects.

JTERM/MTERM

Students have the opportunity to shadow in engineering and/or technology fields of interest during Jterm/Mterm.

EXPERIENTIAL LEARNING OPPORTUNITIES

Each student has the opportunity to participate in a wide variety of experiences in and out of CVCA that can be customized to their interests and goals. These Experience Schools of Distinction opportunities are available in three categories: **Exploratory, College, and Career**.

Through Experience, students chart a path of high-value, customized experiences that maximize the impact of their participation in their School of Distinction. Experiences include classroom observation, tutoring, student-teaching assistance, college visits, guest speaker seminars, and educational workshops. Each student is required to complete three credits in order to achieve distinction.

INTERNSHIPS and EDUCATIONAL EXPERIENCES

Students have the opportunity to participate in internships prior to graduation as part of their Experience credits needed for distinction. Students engage in meaningful engineering projects that help provide important insight into an engineering career.

SOET students have the opportunity to participate in field trips, conferences, and competitions (Best Robotics, TEAMS Competition, West Point Bridge Builder, Robotics Competition, and National Engineering Design Competition).

DISTINCTIONS

Students who complete all SOET requirements receive:

- **Engineering & Technology Cord at Graduation:** Students receive an orange cord.
- T**ranscript Designation:** Students receive a special distinction on their transcript.

FEES

SOET is **$300 per year**. Once accepted, a student's position is confirmed when the automatic payment is completed through their FACTS method of payment on file. Unconfirmed positions may be offered to other candidates on the list. The fees include mentoring program, internship program, guest speakers, specialized instruction, materials, and one-on-one training.









SCHOOL OF ENGINEERING AND TECHNOLOGY CONTACT

Doug Fairchild, B.S.E.E.
4687 Wyoga Lake Road,
Cuyahoga Falls, Ohio 44224
330-929-0575
dfairchild@cvcaroyals.org