

ADE Mission Statement

We believe that each and every student in our academy can be successful and aspire to the highest possible plans for their futures. By fostering increased levels of achievement at the high school level through rigorous and relevant curriculum and close relationships with peers and teachers, the Architectural Design and Engineering Academy at Cosumnes Oaks High School prepares students for college and careers in fields related to engineering and architecture. In our program, we concurrently provide hands-on, real-world experiences that require critical and creative thinking with academic course-loads that enable students the opportunity to fulfill college and university entrance requirements and maximize the future success for each academy student.

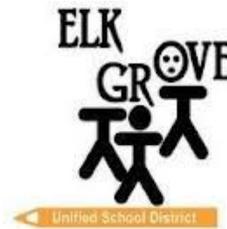


The ADE Academy is designed to meet three goals:

- Students will have authentic learning experiences that will excite and motivate them to pursue careers in architecture and/or engineering;
- Students will be engaged in project-based learning leading to increased academic achievement; and
- Students will be prepared for post secondary education and the 21st century workplace skills, allowing them to successfully transition into adulthood.

Cosumnes Oaks High School

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NON-DISCRIMINATION and ACCESS POLICIES

District programs and activities shall be free from discrimination, including harassment, intimidation and bullying based on a student's actual or perceived disability, gender, gender identity, gender expression, nationality, race, ethnicity, color, ancestry, religion, sexual orientation, age, marital or parental status, or association with a person or group with one or more of these actual or perceived characteristics. This policy applies to all acts related to school activity or school attendance occurring within a school under the jurisdiction of the District Superintendent.

The Elk Grove Unified School District welcomes those with disabilities to participate fully in the programs, services, and activities offered to students, parents, guardians and members of the public. If you need a disability-related modification or accommodation, including auxiliary aids or services, to participate in any program, service or activity offered to you, please contact the Career Technical Education Department at 916-686-7709 at least 48 hours before the scheduled event so that we may make every reasonable effort to accommodate you. Government Code: Section 54953.2; Americans with Disabilities Act of 1990, Section 202 (42 U.S.C. Section 12132.)



Cosumnes Oaks High School

Architectural Design and Engineering



Enabling students to
create a world of vision
& success



COHS Architectural Design & Engineering Academy (ADE)

ADE Coursework

ADE Career and Technical Education Classes

Exploring Technology (9th grade)

Exploring Technology is designed as an introduction to the Academy. Students in Exploring Tech. will have hands-on experience with the tools of building trades and the problem-solving experience of engineering as well as an introduction to computer-aided design. Projects may include: construction of boxes, solar powered cars that compete in races, rocketry, robotics, product design, Pinball machines & student-designed projects.



Building Trades (10th grade)



Students have the opportunity to work in multiple trade sectors in order to gain skills in most aspects of construction. Areas covered in small cooperative groups will be: estimation, blueprint reading, safe use of hand and power tools, concrete, drywall, masonry, wall and roof framing, cabinet making, electrical, plumbing, communications systems, HVAC and finish carpentry. Students will apply their knowledge in developing "green" construction projects and eco-sensitive structures. Students may earn CRC college credit for this course

Principles of Engineering (11th grade)

The engineering students will learn AC/DC, pneumatics, welding, plasma (metal) cutting, measurement, machine tools, electric motors, robotics, bio-diesel fuels and alternative energy sources. Students will work in cooperative groups to research, design and construct various projects, including potential independent projects. Student projects will consist of solar cases that will be sent around the world,



various electric vehicles that students can operate and potentially drive, automated hydroponic gardens; water purification, circulation and solar heat capture and use. Students will adapt existing systems for more specific use and be inventive in their design process. In addition, students will discover their own interests and provide enthusiasm to engineer projects of their own.

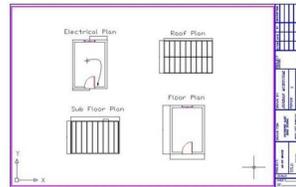
Design & Implementation (12th grade)

This class emphasizes aesthetics and creativity, design, drawing, and project implementation. Included in this course are sculpturing experiences in wood, metal, and clay as well as individualized projects. Students will explore course work on history of design and construction. Design & Implementation students work on projects specifically related to rHOUSE on campus, a Platinum LEED Certified residential house/classroom designed as a resource and educational tool to familiarize students with various green energy systems. Students will work on projects related to the energy efficient systems that the house utilizes. They simplify the system, creating a model and communicating the function in an understandable way to visitors from around the north state.



Engineering Design/CAD (Computer Aided Design)

This is a yearlong course designed to introduce design principles through the use of a variety of computer applications. Students will use current computer hardware and software to learn basic functions such as lines, colors, dimensioning, layers and blocks. Projects include a series of 2D mechanical, civil and architectural drawings. Drawing fundamentals will be taught from conception to drawing and scaling to plotting. This course is aligned with the Career Technical Education, Engineering and Design industry Sector and supports select math, English, and history standards. This course meets 10 credits of mathematics and the district Technology Proficiency Graduation Requirement. Students may earn CRC college credit for this course.



ADE Core Classes



Being a part of the ADE academy extends beyond the CTE classrooms into the main student body as well as ADE core classes. When students are admitted to the ADE Academy, they are provided with the rare opportunity of membership in a "school within a school" model. As permitted by student schedules, many of our academy members take core classes within the academy. These courses meet the same university and graduation requirements as their non-academy counterparts; the difference is that many of these ADE core classes are enriched with projects, assignments, perspectives & expertise related to architectural design, engineering and/or green technology/issues. These courses also allow more real-world applications as it pertains to the interests of the academy students. For example, in English students may engage in technical writing (proposals, manuals, etc.) that relate to projects being created in their Engineering course. In social science, they may explore the role that architecture and engineering have played in history.

Benefits of ADE Academy Membership

Field trips, guest speakers, community service opportunities, academy core classes, college credit, exposure to industry software, job internships/job shadowing, academy awards, participation in competitions, school within a school learning environment, graduation honors (cord).

Students will have opportunities to compete in area-wide competitions including the Youth Energy Summit (YES), Solar Sprint Car competition, Design/Build (shed building at CRC), Robotics Club, Engineering Club, and Solar Regatta competition.

How to join ADE

Contact Tim McDougal and Caroline Martin for an application. The application is also available on the Academy website <http://cosumnesoaks.schoolloop.com/ArchitecturalDesignandEngineering>