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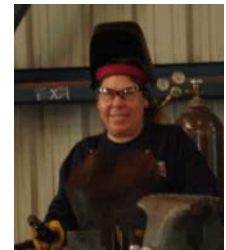
School Works Update

The Sierra STEM Community Collaborative is a partnership of employers, educators and Sierra College shaping relevant, applied academic education that prepares students for careers in Science, Technology, Engineering and Math (STEM). Sierra College received a Chancellors Office grant to strengthen education through hands-on project based learning that integrates academic and technical education.



Steel Day Shows Product Development

Thanks to advisor Vance Lancaster of LB Construction who invited STEM Collaborative members to Steel Day on September 18, 2009. Employees and vendors demonstrated equipment and fabrication techniques that are modeled in the Sierra Tech-Explorer catapult project and by Sierra STEM instructors.



Vision for STEM Two Grant

The STEM grant focuses on these areas -- Program Development, Career Exploration for 7th – 8th Graders, and Professional Development and Externships for educators. In the first year of the grant, Sierra College was able to support several schools in developing new applied academic curriculum, arrange for middle and high schools to pilot the Career Cruising program and enhance the introductory Tech-Explorer catapult building project with new modules. As a result of advisors' input, we anticipate that in phase two, the STEM Collaborative will support and communicate pilot program results, establish a database of integrated curriculum, focus on the product development cycle and support the new Photovoltaic program at Sierra College.

Schools Showcase Progress at Advisory Committee Meeting

Seeing sample projects and hearing from teachers who used Sierra Community Collaborative grant funds to develop new curriculum inspired the business and education representatives who attended the October Advisory Committee meeting in Auburn.

[Chicago Park Middle School](#) is using the Sierra College Tech-Explorer catapult project and the Career Cruising web-based program to introduce 6th, 7th & 8th graders to technical careers. According to Dan Zeisler, the students “don’t have a clue about the possibilities.” By writing new career exploration curriculum, and collaborating with the high school and Sierra College, “we’re tying education to the real world,” said Zeisler. “It is the perfect time to excite students.”

[Colfax High School](#) is blending product design, engineering, math and wood working to update the ROP wood program. In addition, metal, computer, electronics and wood teachers have created a new Design Tech (colfaxdesign.com) course that allows students to rotate through the disciplines as they develop a model car. Seniors can take it again as a capstone class.



Lincoln High School math teacher Ellen Byron, a former engineer, and Scott Seacrist, who teaches the iDesign CNC design and automated manufacturing program (LHSiDesign.com) that allows students to earn up to 12 units of CSU Sacramento credit, are writing integrated math and CTE curriculum. “Kids need to apply math to get a passion for engineering and technology,” said Byron.

Nevada Union High School physics, computer drafting and Career Technical Education instructors jointly developed the new Innovative Design and Engineering Applications (IDEA) course to design, engineer, prototype, test and produce projects such as electric cars and projectile launching devices. Students helped set up the lab with welding and machine shop equipment, sheet metal tools and a foundry. The class seeks mentor engineers and machinists.

North Tahoe High School is hosting Sierra College’s Engineering Support Technology “Technical Drafting” classes at the high school. The computer-aided drafting (CAD) students earn both high school and college credit, and can earn a “Drafting Essentials Skills Certificate.”

Oakmont High School’s Design Technology program is part of the school’s International Baccalaureate curriculum. One of the projects is to design, create a mold, and produce a candy bar. Students do pencil drawings, design it in SolidWorks, create a prototype on the 3D printer and then create a mold using vacuum forming. Students are also designing clock faces and using a laser cutter to produce them in wood.

Placer High School’s Mechatronics program introduces students to programming microcontrollers, and interfacing sensors, speakers, lights, remote controls, and DC and stepper motors as they build robots, cranes and solar trackers. Advanced students articulate to the Sierra College Mechatronics program.



Truckee High School is offering dual-credit Sierra College Mechatronics courses CIE 1 “Science of Electronics,” CIE 10 “Fundamentals of Computer Integrated Electronics,” and CIE 44 “Mechatronics Processes and Materials” leading to an “Electro-Mechanical Skills Certificate.”

Businesses Contribute Speakers, Scrap, Equipment and Time



The Sierra STEM project has benefited from local employers offering externships to teachers, donating excess parts, offering plant tours, mentoring students and speaking to classes. In the photo, Mike MacArthur, National Sales Manager of RobbJack Corp. (L) visited Scott Seacrist (R) and the Lincoln High School iDesign class. Contact Carol Pepper-Kittredge 916-781-6288 if you’d like to contribute.

Applied Academics Project Curriculum

We are looking for teachers to write curriculum for short projects for the STEM database.

Thank you!

Thank you for your support of the STEM Community Collaborative. To reach Sandra Scott, Sierra College, Director Grant Development and Career Technical Education, call 916-781-6244.