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Sierra College addresses Critical Thinking for STEM jobs

ROCKLIN, CA – The Sierra College Science, Technology, Engineering & Math (STEM) Collaborative (www.sierraschoolworks.com) assembled over 40 employers, teachers, principals and superintendents from Placer and Nevada counties to announce the new ACTivATE project on Feb. 13. The Applied Critical Thinking for Advanced Technological Education (ACTivATE) professional development program will train instructors in assessing students' critical thinking skills and provide support to faculty as they infuse more problem solving and other skills desired by employers into their curriculum.

Willy Duncan, President, Sierra Community College District, reiterated the college's commitment to working with Placer and Nevada county high schools to better prepare them for success at Sierra College and in the work world after college graduation. "The ACTivATE project will enrich curriculum and expand the collaboration between college and high school STEM faculty," said Duncan. "This project supports Sierra College's goal of preparing job ready graduates who have the critical thinking skills businesses tell us students need to succeed in the workplace."

According to the Partnership for 21st Century Skills (www.P21.org), a national coalition of businesses, educators and policy makers, "To successfully face rigorous higher education coursework, career challenges and a globally competitive workforce, U.S. schools must align classroom environments with real world environments by fusing the 3Rs (English, reading or language arts; mathematics; science; foreign languages; civics; government; economics; arts; history; and geography) and 4Cs (critical thinking and problem solving; communication; collaboration; and creativity and innovation)."

An employer skills panel made up of Andy Reimanis, Director of Engineering Telefunken Semiconductors America; Carol Rogers, Vice President, Progressive Technology; and Leandra Wilson, Director of Strategic Operations & Human Resources, Harris & Bruno shared specific examples of how employees use critical thinking. They all described the problem solving steps engineers and technicians went through to figure out how to solve production problems.

Because education must adapt to prepare our future workforce, Marianne Cartan, Superintendent, Nevada Joint Union High School District (NJUHSD), says that the ACTivATE project is timely. "With teachers revising curriculum delivery to meet the new Common Core State Standards, they need support and resources in order to bring real-world scenarios into the classroom that apply to their lessons and to develop demonstration-based assessments," said Cartan. "NJUHSD is eager to participate in the Sierra College ACTivATE project."

To create the new Sierra STEM Collaborative ACTivATE professional development program, Sierra College will partner with Tennessee Technological University that produced a widely used Critical Thinking Assessment Test and the Northwestern University Searle Center for Teaching Excellence that developed *Enhancing Critical Thinking in STEM Disciplines: A Faculty Development Model*, both National Science Foundation (NSF) projects. The ACTivATE project also builds on Sierra College's previous NSF Tech-Explorer grant that highlighted the fact that during a hands-on catapult building project, students did not exhibit the critical thinking skills required of technicians.

The Sierra STEM Collaborative is funded by the California Community College Chancellor's Office to prepare students in career technical education programs in manufacturing & product development and engineering & design pathways at the high school and college level. Additional information is available at www.sierraschoolworks.com or contact Carol Pepper-Kittredge at 916-660-7801 or cpepper-kittredge@sierracollege.edu.

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