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Toolwire and Auburn University Co-Create Immersive Scenarios for Engineering Programs

Virtual, “Day-in-the-Life” Environments Based on Auburn’s Challenger Space Shuttle Case Study Designed to Enhance Engagement and Skill Development

Pleasanton, CA – December 14, 2010 □ Auburn University’s Laboratory for Innovative Technology and Engineering Education (LITEE) – www.litee.org - and Toolwire – www.toolwire.com - have partnered to design immersive scenarios for first year engineering students based on LITEE’s case study, [Space Shuttle STS 51-L \(Challenger\)](#). Through this collaboration, Toolwire’s [experiential learning](#) technology and instructional design expertise will be combined with LITEE’s professorial excellence and experience in mechanical engineering and its instructional material development and evaluation expertise.

Engineering programs in the U.S. are struggling to engage and retain students. According to a 2008 study of nine institutions, retention rates of engineering majors ranged from 38 to 66%. LITEE’s response to statistics such as these was to make engineering instruction more authentic and relevant by developing 18 multi-media case studies based on situations faced by actual companies. Still, Auburn studies on student engagement showed that there was room for improvement. “To match the learning style of the students in our program, we needed to introduce a new learning modality that would provide a more hands-on and visual experience. Toolwire’s immersive scenarios were the perfect solution,” commented Auburn’s Dr. PK Raju, Thomas Walter Distinguished Professor of Mechanical Engineering and Director of LITEE. “Bringing together our university resources and experts in industry will no doubt provide the optimal approach to develop learning games that will best serve our students.”

Based on LITEE’s Space Shuttle STS 51-L (Challenger) case study, the scenarios focus on two over-arching learning objectives: understanding key engineering design principles and mastering engineering communication. During these scenarios, students take on the role of a newly hired mechanical engineer within a fictitious company, Lunar Aerospace, to participate in trainings, discussions, conversations, and presentations as they learn about their new company and what it means to be an engineer. Along the way, “Natural Assessments” allow students to demonstrate command of the key topics in the same way that they would in real-life situations by communicating with their virtual “boss,” colleagues, or others within the scenario. All information provided by students in the assessment elements is captured and formatted for delivery to the course instructor for grading purposes and builds a feedback loop for further analysis and course improvements over time.

Initial results are encouraging for the pilot scenarios, which were co-created over the summer and introduced to students during the fall semester. 70% of the students have expressed interest in working with such instructional material in the future. An Auburn instructor commented, “Overall, this is another huge improvement to the case study. The students demonstrate genuine interest in the Toolwire scenarios. We believe that the interactive computer format provided deeper engagement in the material than that of a lecture session.”

Auburn’s scenarios for Engineering are delivered to students via the Internet. “What Toolwire does for universities is not easy – it requires a centralized data center, 24x7 customer service, installation and maintenance staff, dynamic hardware deployment platforms, and software licensing,” commented Michael Watkins, Toolwire’s Director of Instructional Design and Technology. “We take ownership of the challenge

to deliver state-of-the-art experiential learning for students through anytime access to real hardware and software that makes the experience easy, transparent and scalable.”

“Instructional environments such as these immersive scenarios are undeniably on the threshold of cutting-edge technology in education and professional training,” commented Dr. Chetan S. Sankar, an expert on case study development, pedagogy, and research at Auburn University who will be part of a team that closely studies how these virtual, “day-in-the-life” scenarios affect student performance and engagement. “Through this partnership, we will conduct research to fully understand the best ways to utilize this technology in the classroom.”

“Toolwire was founded 15 years ago on the belief that students learn best by doing and have been deeply committed to developing a highly reliable, scalable infrastructure to deliver authentic, experiential learning solutions ever since then,” commented John Valencia, CEO and President of Toolwire. “Combining these capabilities with Auburn/LITEE’s subject matter and educational expertise creates a unique partnership with unlimited potential to significantly enhance higher education engineering instruction.”

About Toolwire

Toolwire is a learning solutions provider specializing in products and services for experiential learning. Bridging the gap between education and experience, Toolwire's LiveLabs, Scenarios, and Immersive Learning Environments provide on-demand, personalized practice to best meet the dynamic needs of the learner. “Learning by doing” provides the quickest and most effective way to develop skills and ensure ongoing learning, knowledge retention and competency. Toolwire’s award winning solutions “bring knowledge to life”. For more information, please visit www.toolwire.com.

About Auburn University’s Laboratory for Innovative Technology and Engineering Education

The Laboratory for Innovative Technology and Engineering Education (LITEE) at Auburn University has established a strong reputation for developing, testing, and disseminating innovative instructional materials for use by engineering and business students. Using funding received from six different NSF grants, LITEE has developed eighteen multi-media case studies that describe problems that happened in actual companies and are available from www.liteecases.com. A major finding from the previously funded research projects is that the case studies serve to improve higher-order cognitive skills, team working skills, and attitude of students towards engineering subjects. LITEE case studies have been widely recognized by national organizations and have received numerous awards recognizing leadership in Engineering Education. For more information about LITEE, please visit www.litee.org and www.liteecases.com.

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