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Project Lead the Way seeks certification

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Staff Writer

FCHS instructor Pat Sipes and students involved in Project Lead The Way (PLTW) will play host to some important guests tomorrow, as the program will seek the required certification necessary for college credits to be awarded to students involved in the program.

Representatives from the Illinois State Board of Education and the University of Illinois will be on hand Friday to view first-hand Sipes' electronics, physics and computer labs, as well as the curriculum taught in PLTW's engineering-related classes.

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— FCHS faculty member Pat Sipes

If all goes well, according to Sipes' understanding, students who are involved in PLTW courses will receive two college credits to be put toward an education at just about any institution of higher learning they choose.

Sipes currently has three final exams on hand for students. The first, according to Sipes, covers material taught in class.

The second helps students prepare for the third, which will offer those who pass college credits, should FCHS' PLTW program receive certification Friday. Students will also show off projects they've engineered over the course of the school year, including catapults, truss systems designed for testing in the school's 'stress analyzer', a marble sorting machine, and several brief 'clay-mation' films.

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Sipes added that students have constructed separate trusses using Liquid Nails, Gorilla Glue and standard Elmer's glue for bonding, and that the students plan to send results gathered from stress analysis to each of the respective companies. "Sending off the results was entirely the students' idea," said Sipes. Students plan to upload the information, complete with graph form analysis, onto PLTW's server, so that the companies can view the actual trusses responses to stress analysis online. "That's what engineers do," said Sipes, "That's how they make their living."

Sipes has also made plans for a 'Freshman workshop' to be held Tuesday and Wednesday, May 29 and 30, which will be open to any current or future FCHS student that may be interested in engineering and engineering related programs. During the workshop, students currently involved in PLTW courses will help participants in the construction of several hands-on projects designed to help promote engineering at FCHS. Sipes' over-arching goal is for incoming freshmen to be able to compile a DVD portfolio of the work they've completed at FCHS by the end of their four-year tenure, which they can then mail in as part of their college applications or put online for review by admissions directors. Sipes has also put together a four-year sequence of courses which, when combined with college preparatory mathematics and science courses, will introduce students to the scope, rigor and discipline of engineering and engineering technology prior to their entering college. Sipes added that if certification is received, students who take all five courses over their four years at FCHS will have accumulated ten college credits, which they can then put toward their education at any institution of higher learning.

According to Sipes, college administrators have recently realized that many students entering into college engineering programs are at a distinct disadvantage, particularly in terms of hands-on experience. Enter Project Lead The Way (PTLW), a non-profit organization sponsored by the private Kern Family Foundation, which focuses on preparing the future technical and engineering workforce in America.

Sipes, having successfully procured some $35,000 in grant money from Project Lead The Way, has put the funds to good use, purchasing items that would otherwise fall far outside of normal budget constraints. One such item is a Structural Stress Analyzer. Standing some three feet tall, the Structural Stress Analyzer is a glass encased box that contains a miniature replica of a bridge's truss system. The Stress Analyzer can then be manipulated, and the truss system within it re-arranged in order to replicate the effect that a vehicle would have while passing over a bridge comprised of the truss system in question.

The PTLW funds have also been used to purchase several sets of Fischer-Technick component parts, which Sipes describes as 'over-grown Legos'. Tech-prep students, with the aid of their new Fischer-Technick building blocks, have constructed a variety of high-tech machines, including one that sorts colored marbles, and an automatic drill press. The marble-sorting device works by shining a light through the marble, and onto a photocell. The photocell then relays the color of the marble in question to a computer program, which in turn determines how it should be sorted. "Constructing something like this is absolutely the kind of hands-on experience that students entering into college engineering programs in the past have lacked," said Sipes, "The students are involved in every aspect, from the construction itself, to making sure the electrical components are working properly—even designing the computer program that recognizes the different wavelengths captured by the photo-cell. It's a fantastic opportunity for hands-on learning, and exactly the type of things these students will be asked to do should they decide to further pursue engineering either at the college level, or as a vocation."

Students have also captured the marble-sorting machine in action, and produced a multi-media presentation detailing the way in which it operates. Complete with music and graphics chosen and generated by the students, the presentation is yet another hands-on learning experience that will aid them in their future endeavors. As Sipes puts it, "In the future, virtually every project in virtually every subject will need to be molded into a multi-media presentation, and our hope is to keep these students ahead of the curve."

Another beneficial aspect of the tech-prep program's association with PTLW is the 'Community Partnership Team'. Through PTLW and the Community Partnership Team, both individuals and organizations have donated materials critical to the students' current and future success. "Man-Tra-Con has donated a plotter, which is a rather costly item used in computer aided drafting," said Sipes. "They've also been kind enough to donate a Pentium four dual-core processor computer. The Regional Office of Education has also donated a computer, and a former tech-prep student, Shane James, has provided us with server space free-of -charge through his business, City Portal Groups."

PLTW's curriculum makes math and science relevant for students by engaging them in hands-on, real-world projects. PLTW, according to Sipes, is all about teaching a hands-on, problem-based approach which adds rigor to traditional technical programs and relevance to traditional academics.

Current and past FCHS student projects can be viewed at the following web addresses:

"http://207.36.209.126:8080/PLTW1_1OD" http://207.36.209.126:8080/PLTW1_1OD

"http://207.36.209.126:8080/PLTW1_2OD" http://207.36.209.126:8080/PLTW1_2OD

"http://207.36.209.126:8080/PLTW1_3" http://207.36.209.126:8080/PLTW1_3

"http://207.36.209.126:8080/PLTW1_5" http://207.36.209.126:8080/PLTW1_5

"http://207.36.209.126:8080/PLTW1_6" http://207.36.209.126:8080/PLTW1_6

— Further information regarding the program itself can be found at: HYPERLINK "http://www.ptlw.org" www.ptlw.org