Project Details

Title: Supporting Academic and Economic Development in STEM fields through Advanced College Physics Courses
Category: 3-Understanding Students' and Other Stakeholders' Needs
Timeline:
- Planned Project Kickoff: 09-01-2011
- Target Completion: 06-01-2014
Status: ACTIVE
Updated: 11-22-2011
Version: 1

1: Project Goal

A: The goal and purpose of this project is to provide courses for students at Pulaski Technical College in order to prepare them for engineering study. The courses are designed for direct transferability to physics and engineering majors at universities. Pulaski Technical College has entered into a memorandum of understanding with the State's flagship university, University of Arkansas, to ensure transferability of courses. University of Arkansas statistics indicate a significant number of students in their programs originate in the central Arkansas area, where Pulaski Technical College is located.

This project directly addresses the state and national need for engineers. This has been noted by both the federal and state government as essential to continue to develop the economy and maintain national competitiveness in a global economy. University of Arkansas maintains a job placement rate that exceeds 80% with starting salaries ranging from $50,000 to $65,000 for bachelor's degree graduates of their engineering colleges.

2: Reasons For Project

A: The reason for taking on this project now is to provide an educational path for students completing basic studies at Pulaski Technical College to seamlessly transfer into the College of Engineering at the University of Arkansas. Pulaski Technical College was approached by the University of Arkansas to form a partnership for this purpose. Pulaski Technical College and University of Arkansas administrators met to develop a memorandum of understanding, and establish goals. Nationally there is a shortage of engineers across the board. The University of Arkansas provided data that states extremely high placement of their graduates in industry, as well as graduate level research. This project and its goals are thus high among our current priorities.

Beyond transferring our students into bachelor and master level programs and local industries, these courses will support the National Science Foundation (NSF) funded efforts, specifically ARK LSAMP which addresses underrepresented populations majoring in STEM fields.

3: Organizational Areas Affected

A: The major impact of this action project will involve instructional and advising areas in preparing students for transfer to a bachelor's level program. As this project develops, PTC instructional and advising areas will have to become fluent in the requirements and rigor of the program. The courses described will entail, at least for some students, significant preparation. To effectively manage timely progression of students advising and instruction will need to provide clear direction. The instructional departments directly affected in the division of mathematics, natural and social sciences are physical sciences, mathematics, and natural sciences.

Other areas will be affected as well, including the admissions department who will focus on marketing the new offerings, transfer coordinator who will focus on the transferability of course work to four year institutions, and financial aid who will have to work on obtaining approval for any new programs for federal student aid funding. Across PTC the other areas directly affected will be advising and student services. These areas will need to be able to clearly describe the intent of the preparatory work, explain it to potential students during recruiting, as well as...
during promotional events.

4: Key Organizational Process(es)
A: The key organizational processes affected will be communication, advising, and instruction. It will be vital for the project to maintain communication with the transferring institution, as well as keeping stakeholders informed of the progress and developing needs of the project.

5: Project Time Frame Rationale
A: The timeline for this projected is projected to be 3 years.

Year 1: Time will be spent researching and preparing the course for offering. This will allow for a proper alignment of the project to transfer institutions’ needs.

Year 2: The course will be offered and piloted with the developed educational objectives and assessment criteria.

Year 3: Assessment of the success of the pilot course will be evaluated by internal assessment, gathering student feedback, and gathering feedback from the University of Arkansas regarding preparation and success of the students that participated in the pilot course and transferred from the Pulaski Technical College to the University of Arkansas

6: Project Success Monitoring
A: Monitoring will proceed along a number of milestones in this project.

Year 1:
- Course development, including syllabus with weekly lecture outlines and course assessment plan.
- Construction and equipping of the laboratory facility.
- Laboratory development, including syllabus with weekly laboratory exercises. This will include prototyping and establishing the viability and validity of the experimental protocols.

Year 2:
- Pilot the initial course offering, and establish baseline information for course assessment.

Year 3:
- Adjustment or modification of the syllabus as needed to establish course content.

An annual report will also be developed that will include information on academic standing and degree progress of the students.

7: Project Outcome Measures
A: Outcome measures will have the following indicators to determine success, based on student enrollment.

- Tracking of numbers of full- and part-time students, both native and transient
- Tracking individual students professing STEM interests and intent
- Advising efforts to facilitate student’s transfer to 4-year institutions, including relevant introductions and early advising at the transfer institution
- Feedback from students
- Receive informal feedback from the transfer institution regarding success, strengths and weaknesses of student and program performance post-transfer
- Track student’s receiving summer internships and research experience for undergraduates
- Incorporate feedback from the division advisory panel members involved in STEM areas -- these specifically include staff at transfer institutions
- Pulaski Technical College and University of Arkansas will participate in annual reporting of students, as well
as providing feedback of student's progress while at the University of Arkansas