1. Name of person(s) submitting application: Ben Rains, Jim Irving, Bruce Schulte
2. Date: 6/15/2011
3. Division/Department: Mathematics, Natural and Social Sciences Division, Physical Sciences department
4. Title of Action Project: Advanced College Physics Courses
5. Describe the Action Project's goals in 100 words or less.
   The project will design and implement the curricula and laboratory for advanced college physics. Advanced physics denotes its calculus-based curricula. The curricula is a conventional two semester, physics course sequence for direct transferability to physics and engineering majors at four year institutions. Goals will include installation of a laboratory, purchase of equipment, and establishment of the course, including an assessment program.
6. Identify the AQIP Category the proposed Action Project will most affect or impact:
   Category 3: Understanding Students' and Other Stakeholders’ Needs
7. How does this project support PTC's mission?
   This project supports PTC’s mission -- advanced college physics is a university level transfer course specifically designed to provide students the pre-requisite physics course sequence needed toward a physics or engineering major. These courses, following the University of Arkansas format, will support the academic and economic development of the state, and serve to provide a skilled workforce educational and training opportunities for businesses and industries requiring engineers.
8. Describe briefly your department/division/committee’s reasons for taking on this Action Project now - why the project and its goals are high among your current priorities.
   PTC was approached by the University of Arkansas – Fayetteville to form a partnership and create a pre-engineering classes to support students prior to entering 4 year engineering programs. The president of the college and UAF officials met to develop a memorandum of understanding, and establish goals.
   This project and its goals are thus high among our current projects. Additionally, these courses will support NSF funded efforts, beyond transferring our students into bachelor’s and master’s level programs, and local industries.
9. List the organizational areas -- institutional departments, programs, divisions, or units -- most affected by or involved in this Action Project.
   Mathematics, Natural and Social Sciences Division
10. Name and describe briefly the key organizational process(es) that you expect this Action Project to change or improve.

This project should produce improved communication between PTC and transfer institutions, as well as facilitate more specific advising of students wishing to enter the STEM fields. Overall, the overall selection of degree specific transfer courses will be improved, as well as efficiency of transfer.

11. How long will it take to accomplish the project (from kickoff to target completion)?

Two years.

Year one 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 two, the course will be piloted to finalize the educational objectives and establish assessment criteria.

12. Describe how you plan to monitor how successfully your efforts on this Action Project are progressing.

Monitoring will proceed along a number of milestones in this project.

1. Course development, including syllabus with weekly lecture outlines.
2. Construction and equipping of the laboratory facility.
3. Laboratory development, including syllabus with weekly laboratory exercises. This will include prototyping and establishing the viability and validity of the experimental protocols.
4. Pilot the initial course offering, and establish baseline information for course assessment.
5. Adjustment or modification of the syllabus as needed to establish course content.

13. Describe the overall "outcome" measures or indicators that will tell you whether this Action Project has been a success or failure in achieving its goals.

Outcome measures will have the following indicators to determine success, based on student enrollment.

1. Tracking of numbers of full- and part-time students, both native and transient.
2. Tracking individual students professing STEM interests and intent.
3. Advising efforts to facilitate student’s transfer to 4 year institutions, including relevant introductions and early advising at the transfer institution.
4. Receive informal feedback from the transfer institution regarding success, strengths and weaknesses of student and program performance post-transfer.
5. Track student's receiving summer internships and research experience for undergraduates.
6. Incorporate feedback from the division advisory panel members involved in STEM areas -- these specifically include staff at transfer institutions.

14. What human resources do you anticipate needing and what sort of time commitment will be expected of the participants?

Full-time faculty member to commit to developing and implementing the course. The faculty member will be expected to commit to managing the implementation of the course. Departmental and divisional administrative oversight.

15. Who will be the project leader(s) and other project team members? (Provide name and title)

Ben Rains, Dean, Mathematics, Natural and Social Sciences
Jim Irving, Chair, Department of Physical Sciences
Bruce Schulte, Instructor, Department of Physical Sciences

16. How much money do you think it will cost to accomplish this project? (If possible, detail expenses.)

Laboratory equipment and supplies $70,000 approximately
Laboratory furnishings, cabinets, installation $70,000 approximately