

## **ATE Project for Physics Faculty** **Fall 2009**

### **A Project of Lee College (TX), Estrella Mountain Community College (AZ), and the National Science Foundation**

The ATE Project for Physics Faculty is pleased to announce a new physics workshop for two-year college (TYC) and high school (HS) physics faculty. The activities of this project are supported in part by a grant<sup>1</sup> from the Division of Undergraduate Education through the Advanced Technological Education (ATE) Program of the National Science Foundation.

This effort is part of a four year, national, ATE-focused, workshop program that is led and administered by Lee College (TX) and Estrella Mountain Community College (AZ). It involves a modification, expansion, and continuation of several previous TYC physics workshop projects, which started in 1991. In its first three years, this project has conducted 13 workshops at 8 different TYCs and universities in 7 states. These previous workshops have served 282 participants from 148 different TYCs and HSs in 36 states, America Samoa, and Puerto Rico.

The goal of this project is to help high school and two-year college students develop a stronger understanding of science, with an emphasis on physics and its applications in industry. This goal is important because of the large number of students, particularly women and minorities, who are enrolled in technology or transfer programs at high schools and two-year colleges who need a stronger science program. The vital task of updating and improving physics programs at high schools and two-year colleges is difficult due to the rapidly occurring changes in technology, the distribution of physics teachers, the heavy and complex workload of the faculty, and their lack of knowledge about the needs and applications of physics in the workplace.

This program addresses these issues by providing a series of faculty development workshops for teams of high school and two-year college teachers who teach the core physics courses for technology programs. These workshops are designed to acquaint the participants with the integration and implementation of emerging technology and active learning strategies. These workshops provide extensive and intensive hands-on, collaborative experiences for participants with workshop materials that make it easy for participants to implement the workshop ideas, adopt or adapt them, and acquire necessary skills to use them effectively in their classroom. The team aspect provides someone local that can help and share in the implementation of these strategies.

Each workshop will be led by TYC and/or HS physics teachers and by several other physics educators who are experts in these fields and have played (and continue to play) a major role in the development of these ideas and materials.

This project has scheduled the following workshop<sup>2</sup> for two-year college and high school physics teachers:

#### **ATE Project for Physics Faculty Schedule**

**Oct. 29-31, 2009 Data Visualization Techniques and Strategies - MBL (DVTS) Workshop at  
(Thurs.-Sat.) Springfield Technical Community College in Springfield, MA**

#### **Workshop Fees**

There are no fees or costs directly associated with participation during these workshops due to the support of the National Science Foundation, Lee College, and Estrella Mountain Community College.

#### **Workshop Schedule**

These workshops will consist of over 35 hours of scheduled activities over three days, of which most time will be spent doing hands-on activities in two or three hour work sessions. Workshop sessions start on Thursday, Friday and Saturday at 8:30 AM. Workshop sessions end each day at approximately 9:30 PM except for Saturday when it is scheduled to end at approximately 4:00 PM.

#### **Teams**

It is recommended that local high school and two-year college faculty apply together for the workshops. Working as a team will enhance collaboration between HS and TYC faculty and make student transitions from HS to TYC or the workplace smoother. Sharing among teams after the workshops will also make the implementation efforts stronger.

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<sup>1</sup> NSF Grant # DUE 0603272

<sup>2</sup> Additional information and updates can be found on the World Wide Web at <http://www.physicsworkshops.org>.

### **Workshop Objectives**

The objectives of these workshops are to provide TYC and HS teachers who serve students involved in advanced technology programs with:

- knowledge of and solid experience with recent major advances in the applications of microcomputers and curriculum developments in physics;
- a means to identify the appropriateness and role of these workshop ideas in meeting the needs of TYCs and HSs, and to see models of how it has been done at other TYCs and HSs;
- an opportunity to develop, adapt, share, and incorporate suitable materials into TYC and HS physics courses and programs; and
- a chance to enhance their understanding and appreciation of the needs of students, educational programs, and workforce needs in areas dealing with advanced technology.

### **Workshop Materials**

Participants will be supplied with the materials needed for each workshop. This includes some background materials prior to the workshops as well as a substantial amount of materials for use during and after the workshops. As a result of attending one of these workshops, participants will be supported by a web-based networking system following the workshops. In addition, an annual electronic newsletter will describe the progress of these and other approaches as well as providing a vehicle for participants to share their work and experiences.

### **Meals and Lodging**

Participants will be provided a room (shared with one other participant) for Wednesday through Saturday evenings at a nearby motel. Individual rooms will be available at an extra cost to the participants. Meals will also be provided during the workshop.

### **Travel to the Workshop Site**

Travel costs to and from the workshop site are expected to be provided by the participants' TYC, if a TYC faculty member. There are limited travel funds available for HS physics faculty. The workshop host institution will attempt to provide scheduled transportation to and from the nearest airport as well as between the motel and the host institution.

### **Stipends**

There are no stipends for attending the workshops. However, workshop participants may receive support of up to \$150 for related efforts and contributions completed and submitted to the project office following the workshop. There will also be a limited number (6) of special project stipends available to participants for more extensive projects.

### **Eligibility and Selection of Participants**

All instructors currently teaching full-time at a recognized two-year college or high school in the United States are eligible for this program if part of their teaching load involves physics. Participants will be selected from the pool of qualified applicants based on the following criteria —

- teams of TYC and HS faculty who teach physics or physics-related courses serving advanced technology or technician programs
- individuals who teach physics or physics-related courses serving advanced technology or technician programs;
- teams of TYC and HS faculty who teach in somewhat limited support of advanced technology or technician programs; and
- individuals who teach in somewhat limited support of advanced technology or technician programs.

Faculty who teach significant numbers of women, minorities, and the physically disabled will be given priority within each of these levels. This program is open to all qualified individuals regardless of race, color, religion, gender, age, national origin, or educationally unrelated disabilities.

### **Application and Selection Dates**

Selection of participants will be announced at least 30 days prior to the start of a workshop. However, early submission is highly recommended since workshop participant selections may be made early for well-qualified applicants.

### **Additional Information and Updates**

Please check <http://www.physicsworkshops.org> or contact the Project Co-Directors Tom O'Kuma (281-425-6522 or [tokuma@lee.edu](mailto:tokuma@lee.edu)) or Dwain Desbien (623-935-8474 or [dwain.desbien@emcmail.maricopa.edu](mailto:dwain.desbien@emcmail.maricopa.edu)) concerning updates, questions, or more information.