Enhancing Your Program Through Projects & Competitions

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ASEE Model Design (robotics) Competition
The American Society for Engineering Education (ASEE) provides an outstanding design/build experience for freshman and sophomore engineering students through the Model Design Competition. My engineering students at Tidewater Community College (TCC) have competed in this event since it began in 1999 and it has had a tremendous impact on our program. The competition is held each June during ASEE's Annual Conference.

The Model Design Competition is sponsored through the Two-Year College Division of ASEE, so most of the teams are from community colleges, although some teams of freshmen & sophomores from universities participate as well. The competition centers around teams of students designing an autonomous (no remote control) robot that can navigate a track and perform various tasks. The robot designs vary widely, so the students are often surprised by some of the approaches taken by the other teams. The excitement level at the competition is very high in this challenging event as the students have worked for months to build their robots and they are often scrambling to get their robots to perform correctly or to improve their robots' performance.

ASEE provided moderate support for this event initially by providing space for the robot track in the Exhibition Hall during the conference and giving students passes to enter the Exhibition Hall without registering for the conference. The number of teams involved has grown from 3 in 1999 to 21 in 2012. ASEE's support has also grown over the years and now includes:
- Student teams can attend the conference for free (normal registration is $500).
- Bleachers are set up for the event (this is a huge conference with 3000 typically in attendance and the robot competition attracts a lot of attention)
- Each team is provided with a table, easel, and power outlets for displaying their robots and making presentations
- A work area is provided with additional tables and power for teams to work on their robots between trials
- A sound system, projectors & screens, and tables for judges are provided
- Announcements are made before the robot competition begins to attract viewers
- An ASEE photographer takes photos and we are generally featured in ASEE Prism magazine

The ASEE Model Design Competition has had a remarkable impact on the Engineering program at TCC. Some of the benefits include:
- We have received much publicity, including articles in college publications and local newspapers.

- Our college has provided much financial support for students to attend this event. Our students are also involved in fundraising. We typically send 6-12 students to the event. Past conferences have been in San Antonio, Portland, Vancouver BC, Salt Lake City, Honolulu, and Montreal. This is a rare and exciting opportunity for community college students.
- This competition helps our students to see engineering as more than just an academic exercise. The practical knowledge and confidence that they gain is quite valuable.
- TCC now has display cases with past robots. Incoming students are intrigued as they see the robots built by others in the program.
- The team skills learned in this competition are as important as the technical details. Students must learn to manage time and resources, divide tasks and communicate with other groups, and to depend on others.

Information on the ASEE Model Design Competition is available at:
http://faculty.tcc.edu/PGordy/ASEE/index.html

Each college is different, but perhaps it is important for each college or program to find some event, competition, etc., where students are engaged and where involvement will enhance their education beyond academics. Finding a supportive organization can provide the right forum and help to alleviate some of the expenses.

How to find discipline-based projects that are right for you
Many community colleges (and universities) are involved in discipline-based projects. Many of the projects are impressive, but faculty may feel that the projects just aren't a good fit at their community college. For example:
- What may work well in an urban setting might not be realistic in a rural setting.
- What may work well with a population of full-time students may not work well with part-time students.
- What may work well in a more affluent area may not work well in an economically depressed area.

Perhaps a valuable activity would be to assist faculty by:
- Doing an assessment of the college's characteristics (population, local resources, programs, etc)
- Developing projects that would fit the given college (work with local businesses or industries, work with specific community needs, etc)
- Discuss funding models
- Discuss how to integrate the projects into the curriculum
- Provide help in getting started