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The CDIO Academy: Creating International Student Design-Implement Experiences

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Increasingly, university engineering programs are adopting a CDIO context, and providing authentic design-implement project-based learning experiences for their students. However, these hardly ever include an organized and intentional international aspect. On the other hand, multinational corporations often report that their engineers encounter social and cultural barriers that create challenges to the smooth coordination of international teams. These are not simply issues of language and distance, but of genuine cultural differences in, for example, the way that decisions are made and consensus is reached. Some barriers are more specific to engineering "style," such as the relative priority of invention and reuse.

The goal of a *CDIO Academy* would be to create a mechanism in which our students can learn about building products, processes and systems effectively on an international team, and become sensitive to, and competent in dealing with, national cultural and engineering style differences, by engaging in a larger scale international design-implement experience.

There are several design approaches to creating such an academy. One would be to create distance international design-implement projects. This has the advantages of not having to move students or professors, but requires that students learn about distance and international work simultaneously, and is known to be very resource intensive and challenging. A second approach is exchange students for some significant portion of an academic year, so that the students are co-located and working together. This too is hard to coordinate and finance. It is also difficult to bring together significant numbers of students from different cultures in one setting.

A potentially preferable alternative is to conduct a short-term program, at one site, in which students from various universities work together on a design-implement project. They could be advised by faculty members and industry participants, also of international backgrounds. Such a program could be as short as a week, or as long as a several months in the summer. The potential benefits of such a program could be significant:

- For the students, a great learning experience in international project teams, and a social network of international colleagues for future interactions
- For participating CDIO faculty members, a way to come together and work together on design-implement experiences, and observe the national cultural differences, and share and create ideas for new ones

- For CDIO universities, an international venue for their students, the knowledge about international projects and design-implement experiences brought back by their participating students and faculty, and an additional benefit of being a CDIO collaborator
- For industry, a cadre of well-trained engineers, who developed the sensitivity and skills to overcome national cultural and style barriers.

Discussion Questions

1. Are we addressing a real need? Who would be our supporters?

2. What is the right format? (co-located? duration? size? etc.)

3. Would students come?

4. What are some examples of specific activities or projects?

5. Who would coordinate and host?

6. Should we run a pilot in 2009?