

## **Project MECESUP UCH0403 – Curricular Renovation of Civil Engineering in the University of Chile and the Pontifical Catholic University of Chile**

Visitor Report

Visitor: Jeffrey Froyd

Dates: 13 – 18 November 2005

MECESUP, a program of the Ministry of Education, has provided funding for two prominent institutions in Chile, the Universidad de Chile and the Pontificia Universidad Católica de Chile, to collaborate to improve engineering education at the two universities and to make materials from the project available to all universities in Chile. Improvement in engineering education involves a broad scope of activities that include:

- Analysis of the length of engineering programs in Chile in comparison to international standards,
- Curriculum renewal, and
- Increasing application of new teaching methodologies.

To provide a more extensive knowledge base for the ambitious undertaking, the project team will invite experts in engineering education from across the world. Dr. Doris Brodeur and Dr. Jeffrey Froyd were the first two invited speakers.

Dr. Froyd offered workshops on Monday, 14 November 2005 while Dr. Brodeur offered workshops on Tuesday, 15 November 2005. PowerPoint presentations for both days are available at <http://escuela.ing.uchile.cl/uch0403/taller2005/material/>. The workshops were open to everyone and participants from across Chile attended. The participant list showed that 59 participants from 24 organizations attended parts of one or both of the workshops. The topics for the workshops that Dr. Froyd offered are listed below:

- Assessment and Evaluation, [http://foundationcoalition.org/home/keycomponents/assessment\\_evaluation.html](http://foundationcoalition.org/home/keycomponents/assessment_evaluation.html)
- Curricular Change, Resistance, and Leadership, <http://www.foundationcoalition.org/home/keycomponents/change.html>
- Curriculum Integration, [http://www.foundationcoalition.org/home/keycomponents/curriculum\\_integration.html](http://www.foundationcoalition.org/home/keycomponents/curriculum_integration.html)
- Active/Cooperative Learning, [http://www.foundationcoalition.org/home/keycomponents/collaborative\\_learning.html](http://www.foundationcoalition.org/home/keycomponents/collaborative_learning.html)

Each workshop invited audience participation and interaction and there were numerous questions from members of the audience. Comments from the evaluations submitted by participants at the end of the workshop were positive and suggested that some participants will be exploring one or more of the topics in greater depth.

Both Drs. Brodeur and Froyd met with the project team at the Pontificia Universidad Católica de Chile on Wednesday, 16 November 2005 and received a more complete report on the scope of the project and its three components, which are listed above. After

seeing the goals and activities of the project, I have concluded that the project is extremely ambitious in terms of the breadth of activities and depth of the planned change. Each member of the project team is well qualified and critically positioned to support achievement of the project goals. The project has allocated two years to develop the implementation plan for renewing engineering curricula at the two institutions, including consideration of possible changes to the length of the program. In addition, the project team will be promoting adoption and adaptation of innovative teaching methodologies by engineering faculty members at both institutions.

Dr. Brodeur presented a workshop on program evaluation on Thursday, 17 November 2005 and both Drs. Brodeur and Froyd met with the project team at the Universidad de Chile. At this meeting, Drs. Brodeur and Froyd offered some observations to the project team, based on what they had learned during the workshops and during the project briefing on the day before. Dr. Brodeur may present her observations in her report, and I will include my observations here.

First, the project team already plans to invite people who have experience on one or more aspects of the project to share their expertise and results. Their willingness to engage external experts to facilitate their efforts to improve engineering education is highly laudable. Second, given the ambitious scope of the project, I thought that greater clarity for the interactions between the two universities would make it easier for the project team to function effectively. It is still unusual for universities to collaborate on curriculum renewal projects and both universities need to describe in more detail how they anticipate their collaboration will improve results from the project. Third, one subteam is currently working on the length of the engineering degree program while a second subteam is working on curriculum renewal. Interactions between the goals of the two subteams are manifold and details on how the two subteams will interact need further elaboration. Fourth, based on what the project team has learned from the visit by Drs. Brodeur and Froyd, they can refine their two-year action plan so that all of the members of the different subteams have greater clarity in terms of project milestones and activities. Hopefully, these observations will benefit the project in its early stages.

On Friday, November 2005, Dr. Froyd presented a workshop, How People Learn to Learn, on the campus of Pontificia Universidad Católica de Chile. Between fifteen and twenty faculty members attended the two-hour workshop and presented many questions about the material and the relevance for the courses that they teach. After the workshop, Drs. Brodeur and Froyd had lunch with the deans of the two engineering colleges and key members of the project team from both universities. Both visitors shared their observations about the project with the two deans and encouraged them to become more actively involved in supporting the project, especially in arranging constructive interactions between the two institutions.