Engineering Consortium
September 23, 2010
8:30 a.m. to 1:30 pm
Campus Center Conference Center

Meeting Summary

Present: Joanne Taira-UHSys, Tep Dobry-UHM/COE, Bruce Liebert-UHM/COE, Peter Quigley-UHCC/Sys, John Rand-KCC, Charles Sasaki – KCC, Louise Pagotto-KCC, Maria Bautista-KCC, Jennifer Hirata-LCC, Ron Flegal-LCC, Mark Hoffman–UHMC, Mehrdad Ghasemi-Nejhad-UHM/ME, Joshua Kaakua-UHM/COE, Peter Crouch-UHM/DeanCOE, Jim Yoshida-HawCC, Clyde Kojiro-HawCC, Reed Dasenbrock-UHM, Ken Morris-UHH, Joe Ciotti-WCC, Richard Fulton-WCC, James Dire-KauCC, Tom Ramsey-UHM, Alan Teramura-UHM, John McKee-UHMC, Erika Lacro-HCC, Suzette Robinson-UHCC/Sys, H. Keith Richards-UHH

NSF funded Pre Engineering Education Collaboration – previously know as PEEC

'Ike (Indigenous Knowledge in Engineering) is a five year grant with the goal of graduating more Native Hawaiians in engineering. It is a collaboration among UHM College of Engineering, Kapi'olani, Leeward, Honolulu and Windward CCs, Maui College, and led by Kapiolani CC. See attached ppt file for details of the grant.

Cohorts are formed during summer programs, the first year is at Kapi'olani CC, then at Maui College and the third year at UHM COE which includes the lab courses: Phys 170L and 272L.

Modular Mathematics, or Mathematics Emporium, was a late and major component of the proposal. Improved success rates in <100 math courses have been documented using the Mathematics Emporium method. Leeward CC is offering a Math 140X that combines Math 135/140 using a Math Emporium. As part of this grant, math and other faculty will be meeting to discuss the emporium method for use in calculus. (Follow-up: Eric Matsuoka, who has been using the Emporium method in <100 math courses and will offer Math 140X in Spring 2011 is interested in developing the calculus series using Math Emporium).

Apparently, the Mathematics faculty at UH Manoa proposed "chunking-up" the curriculum of various mathematics courses long ago but were rebuffed by the fact that UHM requires a final exam during exam week, which is incompatible with examining a chunked-up curriculum.

UHM Engineering PCR

This PCR focuses on pre-engineering and physical sciences. It will sustain the 'Ike grant after the end of the grant and fund the Engineering Consortium. Support from CCs

would be very helpful as the UH budget works its way through the legislature. See attached files for details.

Pre Engineering Common Curriculum

Bruce Liebert provided an overview of the 3 semester pre-engineering curriculum. Not yet decided is if BE XXX (meets DB) and Engr. 101 will be required. The issue will be discussed further with COE faculty. The BE requirement may be met by several courses and may be taken as an upper division course. It was suggested that ENGR 101 be considered as the alpha STEM offering and offered by the CCs. This course will need to be developed as a distance-delivered course.

Joanne Taira reported on the status of the three courses (EE 160, EE 211, and Phys 272) being developed online with UH System support. Tep Dobry is developing EE 160 and will offer it as a UHM section in the spring 2011 as a pilot. (Kap CC may offer Phys 272 in Spring 2011 and definitely in the Fall 2011. The status of EE 211 in terms of when it will be offered as an online course is unknown at this time.

Credit/finance issues will need to be sorted out for CC students taking courses delivered by Manoa faculty.

Reed Dasenbrock reminded folks that there is a lot of resident experience on the Manoa campus dealing with Tribal College issues, as there is at KCC, and this should be leveraged.

As a statewide pre-engineering curriculum, a schedule of courses would need to be developed and confirmed. After discussion, the focus at this time will be on the Math 140 and calculus sequence, Chem 161 and 162, Phys 170 and 272, CEE 270, EE 160, EE 211, and Phys 272. (Note: Kap CC offers Math 135 and 140, Chem 161 and 162 and Phys 170 every fall and spring semesters as online courses)

Faculty who will offer calculus using the emporium method are needed at all campuses.

Articulation of degree programs in general was raised, especially into specific programs such as engineering. This is a particular issue for the ASNS degree at KCC and the similar program being developed at Leeward CC. It is clear that students are already being successfully transferred, so the issue has become one of agreement on an announced transfer grade point average.

While the lab sections for EE 211 and EE 160 look as though they can be taught via distance, the same is not thought to be true of Physics 272L. Thus this lab course will have to be continued to be offered on each campus, or alternatively, selected campuses, while students at other campuses would take the lab a summer sessions on the selected campuses.

What other areas can the Consortium focus on?

Suggestions included:

- Energy / Sustainability – as this is an area of much interest for the State of Hawai‘i
- Construction Management - possible 2+2 program with HCC
- Electro-Optics already offered in Maui, Hawaii and Kauai
- Transportation – an anticipated need with rail
- Computer Science/software/engineering/IT

Mehrdad Nejhad provided background on the REIS project and efforts to bring renewable energy projects to students. Alan Teramura discussed similar efforts in the Natural Sciences. The CCs have a contract with Johnson Controls in which education is built into the contract. Peter Quigley's efforts on behalf of the CCs in the renewable energy arena need to be leveraged.

The fact that computer science/IT and related disciplines are not represented was discussed. It was pointed out that in the CCs these areas either do not transfer to Manoa or they are represented in business-related fields. Crouch remarked that this was an issue because the same employers of engineers and related technologies were often in the market on the computer/IT side simultaneously.

What options in engineering and related fields are available for students who might not complete the engineering curriculum? Examples included LCC's process technology program, UHMC AS/BAS-AET program, secondary education in STEM areas, and industrial mechanics at the CCs, etc.

A list of related programs will be developed as a baseline. Joanne will poll the campuses.

Crouch suggested that each Campus identify one person to represent the campus in pushing forward consortium maters in between consortium meetings. Crouch will work on this.

The issue of expanding to other sciences, especially computer science and related disciplines, was discussed without decision.

A list serve will be created for Consortium members and representatives (engineering-l@lists.hawaii.edu)

The next meeting will be in the Spring 2011 semester.