



UNIVERSITY OF HAWAII SYSTEM

Legislative Testimony

Testimony Presented Before the
Senate Committee on Higher Education
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by

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SB 503 – MAKING APPROPRIATIONS TO THE UNIVERSITY OF HAWAII

Chair Tokuda, Vice Chair Sakamoto, and members of the Senate Committee on Higher Education. Thank you very much for this opportunity to testify on Senate Bill 503 that establishes an undergraduate degree program in applied engineering at the University of Hawai'i at Hilo, creates a special advisory committee, and appropriates funds for the committee and two faculty positions.

The University of Hawai'i thanks the legislature for this intent to support the growth of the University of Hawai'i at Hilo. We support this proposal in principle, but not at this time.

The development of a new academic offering requires review by the Council of Chief Academic Officers representing all ten campuses. The Council is the advisory body that assesses academic and workforce need in the state, the cost of program implementation, potential articulation and transfer among campuses, academic considerations such as accreditation and faculty availability, and whether or not the effort duplicates existing programs at other campuses. After a campus is authorized to plan a new program, a program proposal goes before the Board of Regents.

Any new program proposed in the current budgetary environment must undergo stringent review of continuing operational costs as well as initial implementation. In this specific case, applied technology degrees are expensive, and it is important that we clearly delineate this proposal for applied engineering from UH Mānoa's engineering program and Maui Community College's proposal for an engineering technology program.

Thank you again for your support of UH, and the opportunity to testify on SB503.

Monday February 9, 2009

To: Senator , Chair Tokuda
Senator , Vice-Chair Sakamoto
Higher Education Committee members Baker, Kokubun, Takamine, Taniguchi
and Slom

Re: SB 503, Establishing an undergraduate degree program in applied engineering at the University of Hawaii at Hilo, creating a special advisory committee, and appropriating funds for the committee and two faculty positions.

From: Dr. William W.M. Steiner, Dean, College of Agriculture, Forestry and Natural Resource Management, University of Hawaii, Hilo

Testimony:

I thank the Committee for writing and considering SB503. The UHH has a pre-engineering program presently that has more than 20 students in it; these students transfer elsewhere to finish their engineering degree. This Bill would allow those students to finish at UHH, and would likely attract many more students to attend this professional and applied program. We envision adding 20-30 students/year until we reach a maximum of about 120-130 in the program.

The Committee should be aware that there actually is no applied engineering degree sanctioned by the Accreditation Board for Engineering and Technology (ABET), which accredits some 2,700 programs at more than 550 colleges and universities nationwide. There is, however, a Systems Engineering degree usually associated with industrial engineering approach. This is the strategy we are interested in.

Systems Engineering is taught at 62 College, Universities, Academies and Institutes around the country including the Air Force Academy, The Naval Academy and West Point. Developed during WWII, it was a way to engineer the systems needed for modern weapons platforms such as Battleships and planes. It was picked up and used by NASA to launch the space program during the Kennedy Presidency and beginning in the 1970s began to be taught as a specific engineering approach to building all kinds of systems that might use and integrate photo optics, computers, mechanical systems, electrical systems, physics, high order mathematics and more. It takes a "life cycle" approach which manages all inputs and outputs of the engineered system including when to take the system out of service. This is the type of approach that is necessary in applied engineering to build new harvesting equipment for biofuel producing nut and fruit trees, extraction equipment to get biofuel out, and refineries to purify and make the vegetable oil into useful fuels. It is the type of approach needed to construct off world habitats such as planned for the lunar mission and Mars and envisioned by the PISCES program at UHH. It is the type of program that can be useful to put in place new industries based on bio-oils such as plastics, feeds and fertilizers. And it is the kind of engineering that can bring total support to modern transportation systems, to astronomy telescope systems, to

new types of housing systems, and to alternative energy systems envisioned by HECO and others.

This program is currently planned to be housed in my College (CAFNRM). The reason is because we already have an agricultural engineer on our staff and are preparing to hire two more positions. The final positions we request will give us the core necessary to establish ABET accreditation, and firmly establish within the state an applied engineering program that will serve us well in creating new industries and supporting those already here and now envisioned. Because we seek to establish this program quickly so it will do the state the most good in these hard economic times, we seek the funding to give us a national committee that will give us proper guidance, help us identify appropriate goals and targets, and give us insight into the hiring of the applied engineers we will need. Mahalo for you time and consideration and please contact me should you have any questions.