
Proposal Summary: B.S. in Engineering Science at the University of Hawai'i at Hilo



UNIVERSITY
of HAWAII*
HILO

Summary

The proposal is to establish and offer an ABET accreditable undergraduate degree at UH Hilo in Engineering Science. The program is being developed in collaboration with the College of Engineering at Mānoa under Dean Peter Crouch and includes opportunities for distance learning and unique experiential opportunities for the students. The purpose is to ensure the provision of adequate engineering education designed to help meet the science and technology-oriented economic development opportunities and needs of the Big Island and Neighbor Island communities. This will leverage our faculty, expand our possible areas of concentration, reconcile us with the UHCC programs, and facilitate accreditation. The idea is to create a “Faculty of Engineering Science” composed of faculty from UHH and UH Mānoa (largely by distance). Meeting the **ABET** (Accreditation Board for Engineering and Technology) guidelines for accreditation of the proposed program is necessary to create a competitive program and to fully prepare our students for lifelong careers in engineering. Successful candidates will be eligible to sit for any licensing exam for which they are prepared.

Key Program Features

General Engineering with Concentrations – The focus of the program is to train students in general engineering to help meet the general engineering needs of the Big Island and the state. The focus is on three main areas; alternate energy, instrumentation, and food technology. These are disciplines that serve the unique needs of Hawai'i as well representing growing domestic domains. The programs will emphasize sustainable energy, food security as well as robotics, artificial intelligence, and data manipulation with linkages to current and next generation observatories.

- **The Engineering Science faculty** – will consist of STEM and engineering faculty at UHH and key faculty from UHM Engineering as well as affiliate faculty of professional engineers from the Big Island and elsewhere in Hawai'i. This model is unique yet very consistent with both ABET and the state goals of the UH system.
- **The curriculum** - starts with the 3-4 semester sequence developed by Bruce Liebert's team which delivers an excellent foundation for further study and insures we are in sync across all the campuses in the system. This will also facilitate closer involvement with the system-wide engineering consortium.
- **The upper division curriculum** - will consist of available UHH classes and classes available by distance from Mānoa and/or partners at other campuses (and visa versa).
- **Demonstration Platforms** – Complementing the didactic portion of the program are hands-on faculty led projects in biodiesel, adaptive optics, and simulation during the 1st and 2nd semester curriculum.
- **Practicing Engineer Preceptors** – building on the long engineering education tradition of practice and health-care professional experiential approaches, the students will begin internships with Big Island professional engineering firms. This will be a for credit class supervised by the professional sponsors as affiliate faculty. The goals are to stimulate the students while they explore opportunities, engage professional engineers to participate in advising (raising) students throughout their degree, and to familiarize potential coop partners and employers with talented students.

Status

- Two funded positions are in the process of being advertised which will increase the number of trained engineers at UHH to approximately seven
- The development of distance courses with our colleagues at Mānoa are proceeding including content, delivery logistics, faculty compensation, and enrollment strategies
- A committee of community engineers and stakeholders are engaged and committed to the plan
- Assessment of meeting ABET program requirements is ongoing
- The ATP is being readied for the next CCAO

ABET: 2012-2013 Criteria For Accrediting Engineering Programs

PROGRAM CRITERIA FOR
ENGINEERING, GENERAL ENGINEERING,
ENGINEERING PHYSICS, AND ENGINEERING SCIENCE
AND SIMILARLY NAMED ENGINEERING PROGRAMS

Lead Society: American Society for Engineering Education

These program criteria apply to engineering (without modifiers), general engineering, engineering physics, engineering science(s), and similarly named engineering programs.

There are no program-specific criteria beyond the General Criteria.

The general criteria are focused on:

- Students
- Program Educational Objectives
- Student Outcomes
- Continuous Improvement
- Curriculum
- Faculty
- Facilities
- Institutional Support