

*Resubmitted 7/88*

UNIVERSITY OF HAWAII AT MANOA  
COLLEGE OF ENGINEERING  
November 13, 1984

MAJOR FUNCTIONS

I. ACADEMIC SUPPORT

A. Office of the Dean:

Consists of the Dean, Associate Dean, Assistant Dean and their support staffs--secretarial, fiscal, clerical, and student help. The Dean administers the total program of instruction, research, and public service for the College including, in addition to standard operating support, responsibility for allocation of resources assigned to the College and for long-range planning of programs, facilities, faculty and staff. The Associate Dean concentrates on administrative, academic, and personnel affairs; the Assistant Dean on student affairs. Input and advice on decisions is provided by: a) Engineering Executive Committee, composed of Deans and Chairmen of the four academic departments, President of the Engineering Faculty Senate, and the President of the Engineers' Council of the University of Hawaii; b) Engineering Faculty Senate; c) Alumni Association; and d) Engineers' Council of the University of Hawaii, consisting of the presidents of the six student engineering professional and honorary organizations.

1. Engineering Shop:

Provides assistance to the College faculty and staff in the construction and repair of equipment and apparatus for both instructional laboratories and research activity. Services include design, fabrication, assembly, trouble-shooting, modification, testing and calibration in the areas of machine shop, electronics, metal working, and welding.

2. Fiscal Affairs:

Assists the Dean in meeting his financial management responsibilities by performing the business administration functions for the College. These functions include budget development and execution, procurement, property management, contracts and grants administration, disbursements, receipts, and fiscal control and reporting systems.

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II. INSTRUCTIONAL PROGRAM

Includes the following departments and degree programs.

	<u>B.S.*</u>	<u>M.S.</u>	<u>Ph.D.</u>
Department of Civil Engineering	x	x	
Department of Electrical Engineering	x	x	x
Department of Mechanical Engineering	x	x	x
Department of Ocean Engineering		x	x
Program in General Engineering	x		

A. Civil Engineering:

Encompasses such diverse fields as control of environmental pollution, solid waste management, industrial wastes, space vehicles, radio telescopes, and nuclear plant installations. The program in civil engineering continues to meet the demands of business, industry and government where a broad, fundamental education is required. The curriculum, however, develops depth in the various areas of the civil engineering professions such as environmental and sanitary engineering, structures, applied mechanics, construction engineering, water resources, hydraulics, surveying, soil mechanics, transportation and urban engineering. It is designed to give the student the broad educational background essential to modern civil engineering practice, including a better understanding of societal and environmental problems. The course offerings reflect the changes that are constantly taking place in civil engineering, with emphasis on computer use and the systems analysis approach to large engineering projects. The department faculty is involved in a number of externally funded research programs in the curricular areas listed above.

B. Electrical Engineering:

Provides a program of excellence in electrical engineering education that includes a proper balance between undergraduate and graduate instruction, research and public service. The department has three large research projects and several smaller research projects bringing in substantial funds (over \$1 million) for graduate assistantships, supporting staff and student help employment. The Department of Electrical Engineering co-sponsors annually the Hawaii International Conference on System Sciences. These conferences, which attract over 300

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\*The three basic undergraduate curricula in civil, electrical, and mechanical engineering are fully accredited by the national accreditation agency, the Engineers' Council for Professional Development.

people from all over the world, provide an opportunity to interchange work and ideas among the United States, Japan, Australia and Asian researchers in the general field of systems. The department is also involved in the interdisciplinary program leading to the B.S. degree in Computer Science, which requires coordination with Colleges of Arts and Sciences and Business Administration. The department is responsible for offering the computer programming and system analysis courses for all engineering students, as well as other interested students from throughout the Manoa Campus.

#### C. Mechanical Engineering:

Offers to the citizens of the State of Hawaii the opportunity to undertake programs of study that will enable its graduates to successfully pursue professional careers in mechanical engineering. The graduate program leading to the M.S. and Ph.D. degrees are offered for those who wish to improve their educational background and thereby increase their professional capabilities. The department encourages its students and professors to be involved in research work. Such research is an important component of the instructional programs, especially for graduate students, because only through the involvement with research can students acquire the ability to search out new knowledge and solve new problems relevant to the State as well as to the nation. The department also provides services to the community by active involvement in local professional societies, technical consultation, State Science and Engineering Fair, and high school visitation program.

#### D. Ocean Engineering:

Administers a balanced program of instruction and research in ocean engineering. The academic program is a graduate program and leads to the degrees of M.S. and Ph.D., but the department has responsibility for the instruction of both graduate and undergraduate courses in the field. The instructional program also involves curriculum planning and advising of students in their research. The research program consists of carrying out research in accordance with the purpose for which the proposals were funded. The research effort blends with the instructional effort in that it provides students with support through research assistantships, and it provides students with research subjects for their theses. As part of their function, faculty members serve in committees at the College and University level and participate in other service activities.

J.K.K. Look Laboratory of Oceanographic Engineering is a research and instructional laboratory that provides research facilities and services to faculty, students, and staff involved in academic research, including extramural, intramural, and/or in-house studies relating to ocean engineering. Assists state and federal agencies in solving many ocean-related problems. Educates the graduate students in all aspects of physical and mathematical modeling techniques as applied to waterways, harbors, coastal engineering, and ship hydrodynamics through an ocean hydrodynamics laboratory course and on-the-job training. Educate the public on the awareness of marine science and ocean engineering by making the Look Laboratory facilities and researchers available to study-tour groups or individuals. Provide advisory services to a variety of organizations and/or general public in the field of ocean engineering.

#### **E. General Engineering:**

Offers a baccalaureate program in engineering for the student desiring greater flexibility than can be achieved through one of the three traditional accredited curricula. A student may earn a B.S. in General Engineering through the Engineering Special Studies Program, if he obtains the approval for his program of study from the faculty advisory committee and maintains a GPR above 2.5. A pre-professional program is also offered in cooperation with the College of Business Administration.

#### **F. Computer Facilities:**

Provides computer hardware and software for College faculty, students, and staff for programming instruction, upper-division applications courses, and data acquisition and analysis for research. Services include assuring that hardware is in operable condition, maintaining a system library, programming assistance, and coordinating computing needs with the UH Computing Center or other campus units as necessary. The facilities include only College-acquired equipment, not department-acquired or individual faculty-acquired equipment.

### **III. RESEARCH PROGRAM**

The bulk of the research activity conducted within the College of Engineering is performed by faculty whose salaries come entirely from the Instructional Budget. Engineering does not have a large cadre of researchers, such as HIG or HAES; and the development of the significant level of extramural funding, necessary to support graduate students and their thesis projects, has been achieved primarily by instructional faculty--over and above their teaching responsibilities.