

The Department of Civil and Environmental Engineering

has approximately 18 faculty members, 300 undergraduate students and 80 graduate students, with research expenditures averaging \$2.1 million per year. It offers both an MS and PhD in several areas of concentration: construction management, environmental engineering, hydraulics/hydrology, geotechnical engineering, structural engineering, and transportation. Close cooperation is maintained with other departments in the College, the Water Resources Research Center and other colleges and centers within the University.

The research focus of the Department evolves based upon the needs of the profession, faculty interests and available funding sources. For example:

CONSTRUCTION RESEARCH currently is concerned with project management behavior and infrastructure life-cycle cost analysis.

ENVIRONMENTAL RESEARCH recently has been concerned with molecular biological tools and techniques, explosive residuals bioremediation, and water for humanitarian and disaster relief.

GEOTECHNICAL RESEARCH is looking into landslide and rock-fall risks, seismic subsidence and liquefaction.

HYDRAULICS/HYDROLOGY RESEARCH has been concerned with tsunami wave run-up/inundation, and bridge scour.

STRUCTURAL RESEARCH is concerned with building-health monitoring, energy generation from building vibrations, tsunami wave forces on structures, and seismic and tsunami loadings on bridges and buildings.

TRANSPORTATION RESEARCH recently has been concerned with pavement deterioration modeling, and traffic analysis and simulation.



UNIVERSITY of HAWAII[®]
MĀNOA

THE UNIVERSITY OF HAWAII AT MĀNOA OFFICE OF GRADUATE EDUCATION provides opportunities for further study, research and professional training to students who have earned a bachelor's degree from an accredited institution of higher learning. All of the graduate programs at the University of Hawai'i at Mānoa apply rigorous academic standards. Special emphasis is placed on the cultivation of scholarly attitudes and methods of research and creative activity. For further information, visit: manoa.hawaii.edu/graduate/

The University of Hawai'i at Mānoa is one of only 32 institutions nationwide to hold the distinction of being a land-, sea-, and space-grant research institution. UH Mānoa recently ranked in the top 30 public universities in federal research funding for engineering and science and 49th overall by the National Science Foundation. In fiscal year 2012, UH Mānoa received \$317 million in extramural awards, with research awards totaling \$223 million. Five of UH Mānoa's faculty currently are members of the National Academy of Sciences. For further information, please visit: manoa.hawaii.edu/

College of
ENGINEERING
UNIVERSITY OF HAWAII AT MĀNOA

Graduate Programs in Civil and Environmental Engineering



DEPARTMENT OF
CIVIL AND ENVIRONMENTAL ENGINEERING

Graduate Program Chair:

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MS Program

This program requires 31 credits, culminating in a written and/or oral exam. Students choose to complete either a thesis or non-thesis option; those who do not possess a BS in civil and environmental engineering must first fulfill a set of prerequisites.

PhD Program

Students must satisfactorily complete a minimum of 50 credits in course work beyond the bachelor's degree, with a minimum of one credit in civil and environmental engineering graduate seminars. Students entering the PhD program may be granted an equivalence of up to 30 credits, earned as part of the student's MS program. The 30 credit-hour equivalents may include up to nine credits for previous MS thesis work, but exclude graduate seminar credits taken as part of the MS program.

All PhD students are required to take a qualifying examination no later than the third semester following admission to the program. Every student also must pass a comprehensive examination that will ascertain the student's comprehension in the chosen specialty. All students must complete a dissertation, which should present results from innovative research that makes a significant contribution to the student's selected field of specialization. Findings should be publishable in refereed journals and other scientific and engineering forums

Dual Master's in CEE and MBA Program

A dual master's degree in civil and environmental engineering and business administration is available through the Shidler College of Business. Students must apply to and be accepted into both programs. Once accepted, students must take all classes as a business school graduate student while paying business school tuition rates. The intent is for students to take CEE courses during the day and MBA courses in the evening. There are a total of 73 credits for the dual-degree program, which includes nine credits that are double-counted to satisfy MSCE and MBA requirements. Additional details and information can be found at: shidler.hawaii.edu/



The College of Engineering and the University of Hawai'i at Manoa

The College of Engineering is a multifaceted institute comprised of approximately 55 faculty members, 950 undergraduate students, and 180 graduate students, with external funding of \$8.5 million per year. The Department of Civil and Environmental Engineering plays a significant role in the broader research interests of the College:

SUSTAINABILITY The College takes inspiration from traditional Native Hawaiian land management systems, once able to sustain large populations, in order to create programs that address the challenges now faced by the islands. Such examples include building and maintaining renewable energy resources, providing clean drinking water, mitigating the effects of sea-level rise associated with global warming, becoming resourceful recyclers and re-manufacturers, minimizing the need for imported goods and sustaining a pristine environment.

INFRASTRUCTURE IN SUPPORT OF THE ENVIRONMENT Graduates of our College are employed throughout the state to manage all aspects of its environment, from its buildings and roadways, to its harbors, sea defenses and water and waste systems, thus making it imperative that we retain capacity in order to continually service Hawai'i's future growth.

IT AND CYBER SYSTEMS The College is well known for its contributions to "clean" technologies such as information technology (IT) and communications infrastructure, which will be central to the future of Hawai'i's industry.

RESEARCH CLUSTERS The College also has identified eight cross-cutting research clusters that all departments and centers in the College contribute toward:

- Autonomous Systems and Robotics
- Big Data and Cyber Security
- Biomedical Engineering
- Coastal Infrastructure
- Computer and Computational Engineering
- Sustainable Materials and Manufacturing Technology
- Renewable Energy and Island Sustainability
- Water, Waste and Environmental Engineering

These areas have been chosen to reflect faculty interest and expertise, as well as the evolving needs of Hawai'i. They also represent some of the main interests of the College's collaborators in their research efforts inside the University, within the local community and further afield. The College is especially interested in extending these relationships to local and mainland companies, U.S. mainland and Asian universities, as well as other potential partners.

Funding Support

The Department offers teaching assistantships and individual department faculty offer research assistantships. Once they have applied to the graduate program, students are encouraged to discuss the availability of financial support with the graduate program chair. Prospective students also are encouraged to consult with individual faculty. Please refer to the faculty research guide, available at: www.eng.hawaii.edu/news-publications/publications/

How to Apply

Visit the University of Hawai'i at Mānoa Office of Graduate Education website, or go directly to: manoa.hawaii.edu/graduate/content/how-apply