

# ‘IKE

## Indigenous Knowledge in Engineering

‘IKE is a six-campus UH system collaboration focused on the development of a pre-engineering pathway in the community colleges. This effort specifically focuses on developing a framework supportive of Native Hawaiian students in pursuit of engineering careers. Native Hawaiians and other minority groups are consistently underrepresented in modern science and engineering fields; the intent of ‘IKE is that through the evolution of successful pre-engineering programs in the UH system, we will gain insights on engineering education best practices that may be applied to other indigenous-serving higher-education institutions.

In the short term, the goals of ‘IKE are to (1) create a quality pre-engineering core curriculum that prepares Native Hawaiian students and other underrepresented students for progressively higher-level courses in engineering and to (2) build a community of practice in engineering that connects Native Hawaiian and other students, mentors, undergraduate researchers, advisors, cohorts, faculty instructors and researchers, and community partners including professionals as well as elders and community-based organizations.

## The ‘IKE Pathway

SEE1 (Kapi‘olani Community College)

SEE2 (UH Maui College)

SEE3 (UH Mānoa  
College of Engineering)

## ‘IKE Features

**Summer Engineering Experiences (SEEs)** anchor the cohort experience through math-intensive summer courses and engineering-focused afternoon activities. SEE programs foster exploration in the first summer and cohort bonding through residential programs in years 2 and 3. The SEE series are designed to give students a stronger math foundation and the space to explore their own identities and the value of the indigenous perspective in engineering and science today. The final SEE3, enabling the transition from CC to 4-year institution, features an intensive internship, where students must meet deadlines and work effectively in teams to complete an engineering design project.

**The Math Emporium model** involves technology and online courses in conjunction with instructors and peer mentors. The math emporium enables a more individualized learning environment, where students can move at their own pace. Integration of the math emporium in SEE1 and SEE2 familiarizes students with online learning methods and study strategies.

**Distance learning core courses** developed for the ‘IKE initiative provide access to all pre-engineering students regardless of campus, overcoming Hawaii’s unique geographical challenges. They facilitate the cohort structure and strengthen the ‘IKE network during the semester.

**Collaboration** allows campuses and their students to share experiences and foster a statewide network of support for pre-engineering programs!



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