



# Engineering & Community Practice, M.S.

Among the few programs of its kind in the nation, this one-year master's degree program is designed to develop future engineering leaders who work with and within communities to sustain, restore, and protect our environment. The program draws upon engineering, resource management, and Native/Indigenous knowledges and practices to address environmental issues. It is also designed to integrate theories and methods drawn from Engineering and Native American Studies, preparing graduates to promote social responsibility and civic engagement by building partnerships and projects with Indigenous and underserved communities.

## Experience Your Learning

In learning how to build partnerships and projects with Indigenous and underserved communities, you build engineering research and design skills. You also learn to advocate for strategies that facilitate collaboration with tribal nations in mutually beneficial environmental management practices.

Design tools that address timely issues. For example, engineering students might design sensors that detect hazardous air quality or small home air filters for the Karuk Tribe, which is heavily impacted by wildfires.

Engage in a project with one Engineering and one Native American Studies faculty member throughout the entire year. That partnership is the cornerstone of the program which balances an equal number of courses in both disciplines.

Explore Native sovereignty and federal laws and policies, such as Environmental Protection Act regulations—knowledge that is invaluable whether you decide to work directly with tribes or other communities.

Apply engineering analysis and design to identify critical environmental resources problems and solutions aimed at restoring and sustaining the global environment and assist communities who depend on access to natural resources.

### X Did you know?

- The region has a significant Native American population and includes 13 Tribal Nations, including the state's largest Tribal Nations and largest land-based tribes.
- Engineers from Cal Poly Humboldt's Schatz Energy Research Center helped design and develop a groundbreaking microgrid for the Blue Lake Rancheria Tribe. Engineering faculty have worked on other projects such as the world-famous Arcata Marsh and Wildlife Sanctuary.
- Engineering students have been involved with the Campus Center for Appropriate Technology, an eco-demonstration home run by students who use and test technology that is environmentally, socially, and financially sustainable.



# Academics & Options

## Engineering & Community Practice, M.S.

The program is aimed at students who have an undergraduate engineering degree in a related field (such as environmental, civil, or mechanical engineering) or those who have completed the necessary prerequisite courses to be successful in graduate-level engineering design electives.

### Program Design

- An engineering design concentration, and an engineering professional development component. Prospective students should be able to complete at least three (3) graduate-level engineering design courses within the program year (e.g. Applied Hydraulics, Advanced Thermo & Energy Systems, Water and Wastewater Design, etc.).
- Coursework addressing environmental justice and sustainability, natural resource economics, TEK (Traditional Ecological Knowledge), tribal history and law, Indigenous sovereignty, and decolonizing methodologies.
- A year-long capstone group project with a community partner.

### Resources

Indian Natural Resources, Science and Engineering Program (INRSEP) + Diversity in STEM provides academic and research support services to historically underrepresented students in the sciences.



## Careers

Graduates of the program will be on track to pursue engineering and resource management positions that require strong technological and management skills with a particular focus on interfacing and working with Indigenous and traditionally under-served communities.

- Environmental Engineer
- Water Resources Engineer
- Environmental Engineer
- Engineering Planning and Management
- Water and Wastewater Engineer
- Energy Systems Engineer
- Energy Policy Specialist
- Environmental Consultant
- Tribal/Municipal/City Engineer

