

Start
Your
Future

NOW

Exciting careers blending engineering,
science, and ecology

New Opportunities

Making the world a better place, for people
and the environment.

Design with Nature



Applying yourself to solving tomorrow's
challenges.

A New Approach to
Engineering

Creating Opportunity through
Innovation and Leadership



Ecological Engineering is:

- Ecosystem restoration and habitat design at multiple scales
- Watershed management and enhancement
- Integrated waste treatment systems and beneficial use of waste products
- Phytoremediation and bioremediation
- Industrial ecology
- Constructed wetlands and tidal marshlands
- Mitigation of non-point source contamination
- *The application of engineering principles to enhancing human and natural systems*

Department of Biological &
Ecological Engineering

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Ecological
Engineering
Undergraduate Program

Engineering at the intersection
of human and natural systems



<http://bee.oregonstate.edu/ecoe>

Oregon State
UNIVERSITY **OSU**

Ecological Engineering

A New Approach to Engineered Systems

What is Ecological Engineering?

Ecological Engineering is the *design of sustainable systems* in concert and consistent with ecological principles *that integrate human activities with the natural environment to the benefit of both.*

Ecological Engineering is focused on incorporating ecological principles into the design of both natural and human-dominated systems. It uses ecology as its fundamental design paradigm, emphasizing resiliency, adaptation, and systems approaches to develop

engineered solutions that are sustainable, intrinsically incorporate a broad range of biological systems as components, and emphasize mutual improvement of both human and natural environments. This focus on incorporation of ecological principles in engineering design to promote development of robust, sustainable systems sets it apart from other engineering disciplines.



Degree Options in Ecological Engineering

The Ecological Engineering Undergraduate Program provides a **General Ecological Engineering** track, as well as specialized tracking in **Ecosystem Restoration Engineering and Water Resources Engineering**. All tracks lead to a B.S. in Ecological Engineering and are heavily grounded in both engineering and ecological science. We anticipate that all tracks will be ABET-accredited and can lead to a Professional Engineer license.

General Ecological Engineering

The General Ecological Engineering track provides a flexible program emphasizing a broad integration of engineering and ecological sciences to prepare students for a variety of career options ranging from environmental consulting to design of sustainable technology. It emphasizes systems analysis and design of sustainable systems for a broad range of application areas.



Ecosystem Restoration Engineering

Students completing this track will be prepared to address restoration issues of terrestrial and aquatic ecosystems, including forests, rivers, lakes, wetlands, grasslands, and coastal environments. Students will leave the program with the tools for addressing recovery in degraded systems to emulate the desired structure, function, diversity, and dynamics of a specific ecosystem.

Water Resources Engineering

Students in this track will be able to integrate physical, biological, chemical, and socio-cultural elements of a watershed, work with stakeholders to address divergent interests, and guide landscape management and conservation from both the science and policy perspectives.

You will be prepared for careers as managers, practitioners, and policy makers in this fundamental and enduring field.



For more information, contact us...

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