College of Engineering (CoE)

Founded in 1889, our college endeavors to create solutions that promote strong economies, healthy people, and a sustainable natural environment. Our program has a long history of graduating world-class engineers who have made major impacts on civilization through significant contributions in science and technology. Alumni achievements include breakthrough innovations such as the first artificial heart valve, the computer mouse, and the concept of email.

By emphasizing authentic, experiential engineering experiences within our curriculum, we equip students with the knowledge, skills, and passion to advance innovative solutions to today's most complex engineering challenges. Through nearly 30 unique degree programs at the graduate and undergraduate level, we produce top-notch engineers who are grounded in integrity, ingenuity, and a keen understanding of the interrelatedness of global economies, cultures, and natural systems. Our faculty collaborates across disciplines to leverage synergies in teaching, research, and innovation. And we cultivate strategic partnerships to turn research results into new companies and products that create jobs while helping people to lead better lives.

The College of Engineering offers degrees in engineering, computer science, construction engineering management, energy systems engineering, and radiation health physics. Students may choose engineering majors from biological, chemical, civil, ecological, electrical and computer, environmental, industrial, manufacturing, mechanical, and nuclear engineering. Educational preparation for land surveying, a licensed profession in all states, is offered through civil engineering. Forest engineering is offered by the College of Forestry.

The Engineering Profession

Engineering is the profession in which knowledge of the mathematical and natural sciences gained through education and practice is applied with judgment to develop ways to economically utilize the materials and forces of nature for the benefit of humankind. It is a licensed profession in all of the states of the USA, and educational programs must meet high professional standards. Engineers are not only responsible for planning, designing, manufacturing, construction, and management, but also for the safety and welfare of the public that relies on their work.

Mission and Goals

The college’s undergraduate educational mission is to provide high quality engineering programs that prepare students for successful careers, lifelong learning, and service to their profession and society. OSU engineering graduates will be known for their technical competence and creativity; for their ability to apply, adapt, and extend their knowledge to solve a wide variety of problems; and for their effective communication skills. Their education will provide them with an understanding of the ways in which the humanities, social sciences, basic sciences, and technology interact to affect society. These programs will foster an environment that stimulates learning and promotes diversity.

The college’s undergraduate programs have four goals:

1. Educate students thoroughly in mathematics, basic science and engineering sciences relevant to their discipline’s professional work, including fundamental concepts, experimental techniques, methods of analysis, and computational applications.
2. Develop the ability of students to communicate effectively and to work collaboratively in diverse team environments.
3. Develop in students an awareness of the historical evolution of knowledge and technical applications, the state of current professional practice, their need for lifelong learning, contemporary issues, and the impact of engineering actions and solutions in a societal and global context; and to develop an understanding of their professional and ethical responsibilities.
4. Develop the ability of students to formulate and solve problems, to integrate and synthesize knowledge, and to think creatively, leading to the capability to analyze and design components, processes, or systems; plan and carry out experiments effectively; and troubleshoot and modify processes and systems.

Preparing for an Engineering Career

To prepare for the practice of engineering, students complete an accredited program of study leading to a bachelor of science degree in an established engineering field. Most engineering curricula require 180 credits; exceptions include programs in chemical, ecological, environmental and bioengineering. All programs include a balance of course work in mathematics, science, liberal arts, engineering science, and engineering design.

Upon graduation, engineering students are eligible to take the Fundamentals of Engineering Examination of the State Board of Engineering Examiners in any state. After passing the examination and completing four years of progressively responsible engineering
work, graduates are eligible to take the professional engineering license examination of the state in which they intend to practice.

Although some fields of industrial and government employment do not require formal professional licensure, the educational preparation for the bachelor’s degree is a necessity for virtually all such employment.

Preparation for the professional practice of land surveying follows a pattern of education, experience, examination, and professional licensure similar to that required for professional engineering practice.

Students completing the BS in Radiation Health Physics degree will be eligible to take part I of the Certified Health Physics (CHP) Examination of the American Board of Health Physics after one year of applied health physics practice. After six years of responsible professional experience in health physics, graduates will be eligible to take part II of the CHP examination.

Choosing a Major

The selection of a major is often difficult for students who have not had close association with engineering activities. Students should not be overly concerned with this problem as the first year curriculum is largely similar for all majors. This flexibility allows students to change majors during the first year without loss of progress. Engineering students are encouraged to register for General Engineering unless they are absolutely certain about their chosen major.

The College also offers a number of interdisciplinary programs. More information about these programs can be found on the Other Degrees & Programs webpage.

Graduate Study

Because of the growing complexity of modern engineering practice, graduate study is important for those students who wish to specialize. Students who have established satisfactory undergraduate records and who are looking for the greatest opportunity in their professional field should consider continuation of their education beyond the baccalaureate degree. Study for the Master of Science (MS) and Master of Engineering (MEng) degrees normally requires one or two years. The Doctor of Philosophy (PhD) degree requires three to four additional years.

Accreditation

The Bachelor of Science degrees in Bioengineering, Chemical, Civil, Ecological, Electrical and Computer, Energy Systems, Environmental, Industrial, Manufacturing, Mechanical, and Nuclear Engineering baccalaureate programs are accredited by the Engineering Accreditation Commission of the ABET, Inc. 111 Market Place, Suite 1050, Baltimore, MD 21202-4012; 410-347-7700. The Construction Engineering Management program is accredited by the American Council for Construction Education. The Bachelor of Science degree in Computer Science-Computer Systems option is accredited by the Computing Accreditation Commission of the ABET, Inc. 111 Market Place, Suite 1050, Baltimore, MD 21202-4012; 410-347-7700. The Bachelor of Science degree in Radiation Health Physics is accredited by the Applied Science Accreditation Commission of the ABET, Inc. 111 Market Place, Suite 1050, Baltimore, MD 21202-4012; 410-347-7700.

Admission Requirements

Admission to the college requires that students meet general university admission requirements, as published in the OSU Academic Catalog. Students are assigned to the department or school of their choice after their first year for advising and program planning. Information on policies and programs is available from the College of Engineering.

Professional Program

Enrollment in professional program courses is restricted to those students who have clearly demonstrated an ability to achieve the high standards required for professional studies.

Students must apply to the College of Engineering for admission to starting professional level courses prior to starting professional level courses. To apply, grades of C or better and a minimum of 2.25 cumulative GPA must be earned in required classes. The minimum GPA for admissions will typically be higher than 2.25, but will never be lower.

Students who have completed their pre-professional studies at a college or university other than Oregon State University must apply both to the OSU Office of Admissions for admission to OSU and to the College of Engineering for admission to the professional program. Application links and information planning on policies and programs is available from the College of Engineering.

Forest Engineering

See College of Forestry. Also see College of Forestry for information on the Forest Engineering-Civil Engineering (http://catalog.oregonstate.edu/college-departments/forestry/forest-engineering-resources-management/forest-engineering-civil-engineering-bs-hbs) program.

General Engineering

The first year of the General Engineering curriculum meets the requirements of all engineering curricula except bioengineering, chemical engineering, environmental engineering, and ecological engineering, which require a different chemistry sequence. To meet requirements for bioengineering, chemical engineering, environmental engineering, and ecological engineering, CH 201 and CH 202 may be substituted for CH 231/CH 261, CH 232/CH 262, and CH 233/CH 263. Students who have not decided upon a major prior to enrolling are encouraged to register for General Engineering.

Curriculum

The General Engineering curriculum below will prepare students to enter many of the engineering programs. Students may transfer into any program at any time during the first year; they must transfer by the end of the year.

General Engineering (One-year Program, Major Code: 827)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>CH 201 &amp; CH 202</td>
<td>CHEMISTRY FOR ENGINEERING MAJORS and CHEMISTRY FOR ENGINEERING MAJORS</td>
<td>6</td>
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<tr>
<td>COMM 111</td>
<td>*PUBLIC SPEAKING or COMM 114</td>
<td>*ARGUMENT AND CRITICAL DISCOURSE</td>
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<td>ENGR 111</td>
<td>ENGINEERING ORIENTATION</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 112</td>
<td>INTRODUCTION TO ENGINEERING COMPUTING</td>
<td>3</td>
</tr>
<tr>
<td>HHS 231</td>
<td>*LIFETIME FITNESS FOR HEALTH</td>
<td>2</td>
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<tr>
<td>HHS 241</td>
<td>*LIFETIME FITNESS (or any PAC course)</td>
<td>1-2</td>
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<tr>
<td>MTH 251</td>
<td>*DIFFERENTIAL CALCULUS</td>
<td>4</td>
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<tr>
<td>MTH 252</td>
<td>INTEGRAL CALCULUS</td>
<td>4</td>
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<tr>
<td>MTH 254</td>
<td>VECTOR CALCULUS</td>
<td>4</td>
</tr>
<tr>
<td>PH 211</td>
<td>*GENERAL PHYSICS WITH CALCULUS</td>
<td>4</td>
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</tbody>
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Graduation Requirements
To graduate with a baccalaureate degree in any of the engineering or computer science majors, a student must complete 180 credits; exceptions include programs in chemical, environmental, ecological, and bioengineering, which require 192 credits. In addition, students must have a minimum 2.5 institutional GPA and minimum 2.5 GPA in all required and elective classes in the chosen major. A student must also meet all university degree requirements published each year in the Academic Regulations (http://catalog.oregonstate.edu/regulations) and Procedures (http://catalog.oregonstate.edu/earning-degrees) section of the Academic Catalog.

Academic Dishonesty Policy
Students that violate the academic honesty policy a second time will be suspended from the College of Engineering for a period of one year.