College of Engineering

General Information

Engineering Student Services
107 Peter Kiewit Institute
1110 South 67th Street
Omaha, NE 68182
402-554-3562

Website (http://engineering.unl.edu)

Role and Mission

The College of Engineering enthusiastically embraces its unique role as the singular intellectual and cultural resource for engineering instruction, research and outreach within the state. It provides the people of Nebraska with comprehensive engineering academic programs to fulfill their highest aspirations and ambitions.

The missions of the College of Engineering at the University of Nebraska are:

- to deliver relevant and challenging educational programs to attract an outstanding diverse student body, prepare graduates for rewarding careers in their chosen professions, and encourage graduates to extend their level of knowledge through lifelong learning;
- to conduct leading edge research advances engineering science, and stimulate the intellectual development and creativity of both students and faculty; and,
- to extend exemplary engineering service and transfer knowledge that contributes to the well-being and betterment of society.

About the College

The College of Engineering is located on three campuses (Lincoln City Campus, Lincoln East Campus, and Omaha), and has two Dean’s Offices, 114 Othmer Hall in Lincoln and 100 Peter Kiewit Institute in Omaha. The College is subdivided into units, each under the leadership of a chairperson, department head, or director. There are seven degree programs offered on the Omaha campus. Degree programs based in Omaha are described in this catalog. In addition, the first two years of three additional engineering programs can be taken in Omaha with the remainder of those programs to be completed at Lincoln or elsewhere. Students interested in these additional fields should refer to the undergraduate bulletin of the University of Nebraska-Lincoln for a comprehensive description of total degree requirements.

To meet the need for well-rounded engineers, the College’s engineering programs offer broad education in the physical sciences, social sciences, mathematics, information sciences and humanities. This education is complemented by study in engineering methods of modeling, analysis, synthesis and design in students’ areas of specialization. In addition to preparing students for careers in engineering, bachelor degree programs in engineering provide excellent preparation for graduate study in engineering.

Currently there are six bachelor of science degree programs in engineering which can be completed in four years of full-time study on the Omaha campus. These programs are architectural engineering, civil engineering, computer engineering, construction engineering, electrical engineering, and mechanical engineering. In addition, first and second-year course work is available on the Omaha campus that satisfies program requirements in agricultural engineering, biological systems engineering, and mechanical engineering offered by the College of Engineering on the Lincoln campus.

The agricultural engineering, architectural engineering, biological systems engineering, chemical engineering, civil engineering (Lincoln and Omaha campuses), computer engineering (Omaha campus), computer engineering (Lincoln campus), electrical engineering (Lincoln Campus), electronics engineering, and mechanical engineering programs are accredited by the Engineering Accreditation Commission of ABET, Inc., III Market Place, Suite 1050, Baltimore, MD 21202-4012, telephone 410-347-7700, website www.abet.org (http://www.abet.org).

Charles W. Durham School of Architectural Engineering and Construction

The Charles W. Durham School of Architectural Engineering and Construction offers three undergraduate programs: Architectural Engineering, Construction Engineering and Construction Management. These programs are described elsewhere in this section of the undergraduate catalog.

The construction management program provides intensive technical and management related applications of principles and procedures utilized in the construction industry. The program prepares graduates for activities and positions that support a broad range of construction related functions and operations. Graduates find richly rewarding careers in a wide variety of construction organizations, having responsibilities for planning, scheduling and building the projects designed by architects and engineers. The construction management program is accredited by the American Council for Construction Education, 1300 Hudson Lane, Suite #3, Monroe, LA 71201.

For more information visit www.engineering.unl.edu (http://www.engineering.unl.edu).

General College Policies

These policies are applicable to all students in the College of Engineering.

- Student priority for entrance into classes for which demand exceeds available class space will be based on cumulative GPA. This priority will be applied at the end of early registration (when applicable).
- Non-College of Engineering students must meet applicable College GPA policies, not be in violation of the College course repeat policies, and have written approval from the College of Engineering before they enroll in any engineering or construction management course.
- Students may take any one College of Engineering course a maximum of three times. In addition,
  - Construction management students may repeat a maximum of three College of Engineering courses with “F” grades.
  - Engineering students and students from other colleges may repeat a maximum of three College of Engineering courses with “D” or “F” grades.
- All students must have a College of Engineering adviser’s, chairperson’s or dean’s signature on all worksheets, enrollment and drop-add forms. Any subsequent changes on these forms, or in enrollment from those courses previously approved, must also be approved by an adviser, chairperson or dean.
- At least 30 of the last 36 credits needed for a degree must be registered for and completed at UNO or UNL while identified with the College of Engineering. This means that, practically speaking, the last year of a student’s work must be spent in residence.
- Effective with the Fall semester 2011, students entering a baccalaureate program in the College of Engineering on the Omaha campus must satisfy the Achievement Centered Education (ACE) requirements of the University of Nebraska Lincoln as part of their degree requirements.
- Students in the College of Engineering are not encouraged to take courses as Credit/No Credit (Pass / No Pass). Exception: Engineering 4000. In addition, students may take up to 12 credit hours of courses in the humanities and social sciences as Credit / No Credit basis. Typically, students in the College of Engineering may not take other required
courses or technical electives with a grading option of Credit / No Credit.

- Credits for “Intensive English Program” at UNL and “English as a Second Language” at UNO are not applicable to degree programs in the College of Engineering.
- Students who are officially accepted into the College of Engineering under the academic year (Fall, Spring, Summer) of this catalog and maintain continuous enrollment must fulfill the requirements as stated in this UNO Undergraduate Catalog (or UNL Bulletin when applicable) or in any other UNO Catalog which is published while they are enrolled in the College, provided that the catalog is no more than ten (10) years old at the time of graduation. A student must, however, meet the graduation requirements from one catalog only. A student may not choose a portion from one catalog and the remainder from another catalog. Additional departmental and program based conditions and requirements may apply.
- The College of Engineering does not accept courses for transfer from outside the University of Nebraska system (UNK, UNL, or UNO) in which a grade less than “C” is received.
- Subject to space availability, any student with a cumulative GPA less than 2.40 may enroll in AE 1010, CNST 1310, CIVE 112, CONE 1030 and ECEN 2250 providing they have permission from the College of Engineering and their enrollment does not violate course repeat policies of the College of Engineering. Similarly, students who have College of Engineering permission, do not violate College of Engineering course repeat policies, have the appropriate course prerequisites and whose cumulative GPA is above 2.0 may enroll in, MENG 2200, MENG 3240, and ENGR 3000.
- Excluding exemptions specified under the student classification and general college policy sections, a minimum cumulative GPA of at least 2.40 is required to enroll in engineering and construction management courses.

Program Controls
The department reserves the right to change or update programs. Classes which are dropped from a required curriculum may no longer apply to degree requirements. Classes added to a required curriculum may be required of all subsequent graduates. Some prerequisites may not apply after two years. A non-continuous student (one who drops out for one semester, or longer) will face revised or updated graduation requirements. Prior approvals, acceptances or other advising agreements will no longer apply in such cases of non-continuous enrollment. Access to departmental courses is controlled by the department. Students whose GPAs are below certain limits, and students who fail to acquire prior departmental approval to enroll, may not be eligible. If space is limited in classes, priority may be given to those students who are near to graduation, and need such classes for graduation.

Life Long Learning
The education of professionals in engineering and construction management is a continuing process. The ground work in both technical and nontechnical studies is laid while in college, but education does not stop on the day of graduation. For a professional, education will continue not only in the technical areas but in areas that relate to human and social concerns. A professional may expect to take a leadership role in the community and must have a broad awareness of human and social accomplishments, needs, values, and a willingness to take the responsibility for meeting these needs. For these reasons, an integrated program of course work in the humanities and social sciences is part of the educational requirements.

Other College Information
Application for the Diploma
Each student who expects to receive a diploma must file an application of candidacy for the diploma on-line on MavLINK. Announcements about deadline dates are posted on UNO’s Academic Calendar webpage.
Admission Requirements

Prerequisites for courses offered in the college are effective even if they are not listed in the schedule. A maximum amount of credit that a student may earn during any semester does not generally exceed 18 credit hours without the Dean’s permission.

Admission and Academic Policies

These policies are subject to change. Students should consult their adviser, their department chair, or Engineering Student Services, if they have questions on current policies.

Engineering and Construction Management Admission Requirements

- High school transcripts are required of students including those transferring from colleges within UNO or the University of Nebraska system. Students wishing to enter engineering or the construction management program must have the following minimum units (one unit equals one year) of high school credit for:

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>English</td>
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<td></td>
<td>Trigonometry or pre-calculus</td>
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<tr>
<td></td>
<td>Algebra</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Geometry</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Physics</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Chemistry ¹</td>
<td>1</td>
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<tr>
<td></td>
<td>Natural Science</td>
<td>1</td>
</tr>
</tbody>
</table>

¹ A second unit of natural science may be used in place of chemistry for construction management applicants.

- In addition to the specific high school unit requirements listed previously, students are expected to meet core course requirements as specified for admission by the University of Nebraska at Omaha.

- Students having composite ACT scores of 28 or greater (or equivalent SAT score) will be admitted to the College of Engineering even if they lack one unit of the following: trigonometry / pre-calculus, chemistry, or physics.

- Official transcripts are required from all institutions of higher education previously attended. A minimum cumulative grade point average from the last institution of higher education attended (for 12 or more earned collegiate semester credit hours) of 2.5 for residents of Nebraska and 3.0 for non-residents is required for admission to engineering and construction management. Exception: a grade point average (cumulative and most recent term) of 2.5 is required for both residents and non-residents transferring within the College of Engineering or transferring from another college in the University of Nebraska system or from an EAC of ABET accredited program at another institution.

- A composite ACT (enhanced) score of 24 or greater, or a SAT (verbal + math) score of 1110 or greater. Exception: transfer and readmitted students with 12 or more earned collegiate semester credit hours.

- Entering students are required to have appropriate math, English and chemistry placement examination results prior to their first semester of enrollment.

- Students for whom English is not their language of nurture must score a minimum of 523 on the TOEFL before admission will be considered.

- Students must be accepted into an engineering or construction management program by the end of the week prior to general registration.

- Students with substantial potential to perform college-level academic work, but lack college entrance requirements may be admitted to the college with pre-engineering status based on ACT score, high school rank, and high school credits. These students are accepted on a provisional or trial basis for the purpose of establishing their academic credential and firming up their career objectives. Pre-engineering students may take freshman and sophomore-level courses in the College of Engineering. Students may be reclassified from pre-engineering to restricted status when their accumulative GPA falls below 2.4.

Transfer students who have attended a two-year community college transfer program in engineering should meet with an adviser to consider all options available to him/her. All prospective students are invited to visit the campus and meet with an adviser.

Engineering and Construction Management Student Classification

Regular Engineering Students

Students who have completed 43 credit hours that are applicable to the engineering degree they seek in the College of Engineering may apply for formal admission to a degree program. Those students whose credit hours applicable to the degree they seek exceeds 61 must receive formal admission to an engineering degree program if they are to continue to take engineering courses taught in the College of Engineering and/or be identified with the college.

Students in the College of Engineering, students from other majors or colleges in the University, readmitted students, and transfer students from other institutions may make application to an engineering degree program during the first four weeks of the fall or spring semester. Students must have at least 12 credit hours of course work from the University of Nebraska on record before an application will be considered. The application must be submitted with a complete record of course work. Students may select a first and second choice of an engineering degree program on a single application and may submit no more than two applications and only in successive semesters. Applications will be judged on a competitive academic performance basis.

Regular engineering students may have their admission to a degree program suspended if their academic record is unsatisfactory. In addition, regular engineering students whose cumulative GPA falls below 2.4 will be reclassified to restricted status. Students may not graduate with a degree in engineering while in the restricted status.

Regular Construction Management Students

Pre-construction management students must apply and be admitted to the construction management degree program after completing 30 credit hours of required course work. Students failing to be admitted to the construction management degree program prior to earning 65 credit hours may be dropped as a construction management degree candidate.

Regular construction management students who fail to maintain a minimum cumulative GPA of 2.4 may be reclassified as a restricted student. Students may not graduate with a degree in construction management while in the restricted status.

Students Who Have Not Been Admitted to the College of Engineering

Students who have not been admitted to the College of Engineering will be classified as restricted and will need to enroll in another college. These students are generally restricted from taking College of Engineering courses while in this restricted status.

- New students or students with less than 12 credit hours of college credit will be classified as restricted students if:
  - They have not completed the high school entrance course requirements for the College of Engineering.
  - Their composite ACT score falls below 24 or their SAT (verbal + math) score falls below 1110.
  - Transfer and readmitted students with 12 or more credit hours of college credit will be classified as restricted students if:
• They have not completed the high school entrance requirements for the College of Engineering.
• They fail to meet the following GPA minimum from their previous college work: 2.5 for Nebraska residents; 3.0 for non-residents.
• Students who have not completed admissions to UNL or UNO by the end of the week prior to general registration will be classified as restricted. Students may be reclassified to restricted status when their cumulative GPA falls below 2.4. These students may request reclassification from the “restricted” status to “pre” status when:
  • All high school deficiencies have been satisfied;
  • Cumulative GPA for a total of at least 12 credit hours and most recent semester or term GPA at UNO is at least 2.5.

College of Engineering Programs

Engineering

Architectural Engineering
• B.S. Degree Program (http://catalog.unomaha.edu/undergraduate/college-engineering/bs-architectural-engineering)

Civil Engineering
• B.S. Degree Program (http://catalog.unomaha.edu/undergraduate/college-engineering/civil-engineering-bs)

Computer Engineering
• B.S. Degree Program (http://catalog.unomaha.edu/undergraduate/college-engineering/computer-engineering-bs)

Construction Engineering
• B.S. Degree Program (http://catalog.unomaha.edu/undergraduate/college-engineering/construction/construction-engineering-bs)

Electrical Engineering
• B.S. Degree Program (http://catalog.unomaha.edu/undergraduate/college-engineering/electrical-computer-engineering/electrical-engineering-bs)

Electronics Engineering
• B.S. Degree Program (http://catalog.unomaha.edu/undergraduate/college-engineering/electrical-computer-engineering/electronics-engineering-bs)

First two years of:
• Agricultural Engineering (http://catalog.unomaha.edu/undergraduate/college-engineering/pre-engineering/pre-agricultural-engineering)
• Biological Systems Engineering (http://catalog.unomaha.edu/undergraduate/college-engineering/pre-engineering/pre-biological-systems-engineering)
• Mechanical Engineering (http://catalog.unomaha.edu/undergraduate/college-engineering/pre-engineering/pre-mechanical-engineering)

Management

Construction Management
• B.S. Degree Program (http://catalog.unomaha.edu/undergraduate/college-engineering/construction/construction-management-bs)

Graduate Programs

A variety of graduate programs in engineering and construction management are available. For details on programs leading to masters and doctorate degrees, including the application process, individuals should contact the appropriate department or office of the dean in the College of Engineering. Application forms are available at http://www.unl.edu/gradstudies.

Requirements for Minor Offered by Department

This minor is for Engineering and Architecture majors ONLY.

The College of Engineering enables students to participate in approved minors subject to the following conditions:

1. A minor will not reduce or alter the existing course or degree requirements for students electing to pursue a minor.

2. A student’s minor program must be organized and approved by an advisor prior to the submission of the senior check to the department chair or head.

3. The minor must be approved by the advisor, the department chair or head, the Dean and the cognizant program offering the minor.

4. The College of Engineering will follow the “Plan A/B” format of the College of Arts and Sciences in which a student pursuing a single minor must complete the “Plan A” requirements. A student pursuing a double (or greater) minor must fulfill either the “Plan A” or “Plan B” requirements for both minors depending on which plan is offered by the cognizant department.

5. Minors on either the City Campus in Lincoln or the Scott Campus in Omaha may be added by approval of the College of Engineering Curriculum Committee and faculty.

Course Requirements

Plan A Only

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<tr>
<th>Code</th>
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<th>Credits</th>
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<tr>
<td>LAWS 3930</td>
<td>BUSINESS LAW FUNDAMENTALS</td>
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<td>CNST 1120</td>
<td>CONSTRUCTION COMMUNICATIONS</td>
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<td>CNST 2410</td>
<td>CONSTRUCTION METHODS &amp; EQUIPMENT I</td>
<td>3</td>
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<td>CNST 3050</td>
<td>BUILDING ENVN TECHNICAL SYST I</td>
<td>3</td>
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<tr>
<td>CNST 3790</td>
<td>CONSTRUCTION ESTIMATING II</td>
<td>3</td>
</tr>
<tr>
<td>CNST 4800</td>
<td>PRODUCTIVITY AND HUMAN FACTORS IN CONSTRUCTION</td>
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<tr>
<td>CNST 4850</td>
<td>CONSTRUCTION PLANNING, SCHEDULNG, AND CONTROLS</td>
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<tr>
<td>MGMT 3490</td>
<td>MANAGEMENT</td>
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Total Credits 24