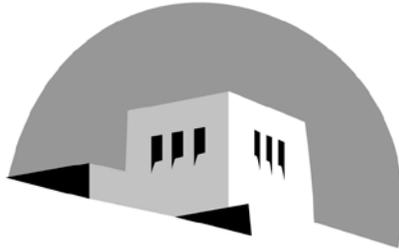


Undergraduate Student Handbook

Department of Civil Engineering



The University of New Mexico

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**Undergraduate Student Handbook
Department of Civil Engineering
University of New Mexico**

IMPORTANT NOTE: Please check our website for updates to the information contained in this manual: <http://civil.unm.edu>.

Introduction

Welcome to the Department of Civil Engineering! This handbook provides you with helpful information about the undergraduate programs in the Department of Civil Engineering (CE Department) and helps you successfully fulfill the requirements of your chosen undergraduate degree.

The CE Department offers three undergraduate degrees:

- BS in Civil Engineering (BSCE)
- BS in Construction Engineering (BSCoE)
- BS in Construction Management (BSCM)

The department also offers the following graduate degrees: Master of Science in Civil Engineering (MSCE), Master of Construction Management (MCM), Master of Engineering in Civil Engineering (MENG), and Doctor of Philosophy (Ph.D.) in Engineering with a concentration in Civil Engineering. More information on graduate degrees can be found on the department website.

Accreditation

The Civil Engineering Program is accredited by the Engineering Accreditation Commission of ABET, <http://www.abet.org>.

The Construction Engineering Program is accredited by the Engineering Accreditation Commission of ABET, <http://www.abet.org>.

The Bachelor of Science Program in Construction Management is accredited by the American Council for Construction Education, <http://www.acce-hq.org>.

Admission to the Department

Every student who wishes to pursue an undergraduate degree offered in the CE Department must be formally admitted to the department. Students entering the university with an interest in one of the CE Department's three undergraduate degrees will be admitted as a pre-major assigned to the CE Department. When they have successfully completed the admission requirements for their desired degree, they can apply for admission to the CE Department.

Admission requirements to the CE Department are as follows:

- Completion of at least 26 credit hours toward the degree and good standing in the university
- An overall GPA of at least 2.2
- Completion of at least 19-25 credit hours of technical courses required in the first year curricula (courses vary by degree program)
- A GPA of at least 2.75 and grades of C- or better in each of those 19-25 hours

- Completion of Engl 110 with a grade of C or better

Transfer students apply through the Office of Admissions and are considered for admission to the department under the same conditions. The university's Admissions Office and the CE Department will evaluate their transcripts to determine which transfer courses will be accepted toward the appropriate degree program. Prior to admission, if necessary, approval may have to be obtained for appropriate course equivalencies or core substitutions from the respective academic departments or the Associate Dean of Engineering.

Students must be admitted to the department before they can register for any 300 or 400 level classes.

Advisement

All pre-major students will be advised within the CE Department by the Program Advisement Coordinator. Once admitted to the department, students will be assigned a faculty advisor who will remain with you until graduation. Construction and engineering programs are very structured by nature, with each course building on previous ones; moreover, most of the courses in the last two years of the curriculum are offered only once a year. Therefore, it is important that you plan your course of study carefully. Your faculty advisor will not only help you decide which courses to take each semester but also advise you regarding other issues related to success in your studies. As you prepare to register for the upcoming semester, typically in November and April, you must meet with your advisor and fill out an advisement form. You and your advisor will sign the form, after which the department will lift the advisement hold on your registration.

You should make every effort to get to know your advisor and visit with him/her often during the semester. You will find that this relationship will help you make the best decisions regarding your academic future, and an advisor can help you with references, leads for jobs, and many other steps that will help you in your career. While it is critical to follow your advisor's counsel, that will not substitute for taking personal responsibility for your own program.

Academic Policies

The general catalog contains a number of policies affecting your academic program. You should read these policies to ensure that you understand their applications, because they apply to all students in the School of Engineering, regardless of their department. Specific graduation requirements can be found at <http://catalog.unm.edu/catalogs/2016-2017/colleges/engineering/index.html>.

The faculty encourage you to make the fastest and most efficient progress toward your degree. The following additional departmental policies will help ensure your success in a high-quality program:

- Students in all three degree programs must complete all mathematics, science and engineering courses required for their degree with a grade of C- or better.
- Students must satisfy all prerequisites before enrolling in a course.
- No student may enroll in a course in the civil engineering department without first earning a grade of C- or above in all prerequisites for the course.

- Students transferring into the department must complete at least 24 credit hours of work applicable to the degree after admission to the civil engineering department.
- You will not be permitted to register for a course unless you have satisfied the prerequisites.
- All course work required for graduation in a School of Engineering degree program must be successfully completed within three attempts. (See <http://catalog.unm.edu/catalogs/2016-2017/colleges/engineering/index.html>, under Graduation Requirements.)

Placement Out of English 110 (101) and/or 120 (102)

Some students may have “placed out” of English 110 (101) and/or (120) 102 by virtue of a minimum ACT or SAT score established by the English Department. “Placement” means that you are not required to take those one or two courses, but you do not receive “credit” for those courses either.

Since our bachelor’s degree requires at least 123 credits to graduate, you must take the 3 or 6 credits in other courses in order to satisfy the “credits” that you do not receive for the one or two English courses. This policy has been articulated by the Associate Dean of the School of Engineering, Dr. Charles Fleddermann, confirmed November 2014.

You may take other Humanities, Fine Arts (not a studio course), or Social Sciences. The department must approve your choices.

You must propose to the Coordinator of Program Advisement, in writing (email is fine), what you will substitute for the English 110 (101) and 120 (102), so that your choices can be approved and documented.

Credit/No Credit Grading Option

The Credit/No Credit (CR/NC) grading option cannot be used for any courses required in the curriculum or for any technical elective courses. You may elect the CR/NC option for the Humanities, Social and Behavioral Sciences (except Econ 105/106), Fine Arts, and Second Language electives in the core curriculum. Bear in mind that some schools, when evaluating your record for graduate admissions, may interpret the Credit option as a C, and a No Credit as an F on your transcript, thus affecting your GPA.

Add

A student may add courses or change sections through the second week of the semester.

Drop

You may drop a course or courses without a grade during the first three weeks of the semester. (See <http://catalog.unm.edu/catalogs/2016-2017/student-services-information.html>, under Changes in Enrollment.)

Withdrawal

After the third week you may withdraw from a course until the end of the 12th week of the semester and are subject to grade of W.

After the 12th week, course withdrawals will only be accepted with approval from the Dean of the School of Engineering. No withdrawals will be accepted after the last day of instruction of the semester, prior to final exam week.

Grades at the time of withdrawal are based upon your scores on homework, quizzes, exams, laboratory assignments, or other course work.

How Withdrawals Can Affect Your Graduation

You must complete a required course with an appropriate grade (C or higher for all core courses; C- or higher for all required engineering courses) within three attempts. The number of “attempts” includes not only those at UNM but also at any other institution with an accredited program where you have taken the course and received a grade. A course “grade” at UNM or elsewhere includes W, WP, WP, WNC, NC, I, AUD, or any grade A through F.

You are NOT eligible for graduation if you cannot earn the required grade within three attempts.

Probation and Suspension

Students who are not making satisfactory progress toward the degree may be placed on probationary status. If the probation conditions are not removed within a semester, a student is subject to dismissal from the School of Engineering. A School of Engineering committee makes recommendations to the SOE Associate Dean on probation and suspension decisions.

University Core Curriculum Requirements

The faculty of the University has instituted a common core of courses required of students in all degree programs. Each curriculum in the CE Department satisfies the Writing and Speaking, Mathematics, and Physical and Natural Sciences core requirements. You will be required to select and complete elective courses in Humanities, Social and Behavioral Sciences, Fine Arts and Foreign Languages. You can find the current core curriculum requirements as they apply to students in this department at <https://unmcore.unm.edu>.

Degree Curricula

The curriculum for each undergraduate engineering degree is designed to provide a foundation of scientific and mathematical understanding of the principles of engineering as well as an introduction to civil engineering design. Likewise, the construction management curriculum includes basic management and technical courses.

The current course requirements for each degree can be found at <http://civil.unm.edu/programs-and-degrees/undergraduate/index.html>. You must satisfy the curriculum specified in the UNM catalog at the time that you are admitted to the department, although you may choose to make substitutions satisfying more recent curriculum requirements that are introduced before you graduate. The Coordinator of Program Advisement will compile a curriculum/degree sheet in your student file showing your progress. Because this form represents the formal record of your standing in the department, you should check it with your faculty advisor each semester to ensure its accuracy.

Electives

The civil engineering curriculum requires a total of 6 electives called Breadth and Depth Required Electives which allows students to take upper level courses in the sub-disciplines of civil engineering: Construction, Environmental, Geotechnical, Structures, Transportation, and Water Resources. These electives are taken in the junior and senior years and are selected from a list of courses approved by the faculty. The list can be found at <http://civil.unm.edu/programs-and-degrees/undergraduate/bachelor-of-science-in-civil-engineering.html>.

The construction engineering curriculum includes two elective courses, normally taken in the senior year, which are selected from a list of courses approved by your faculty advisor (typically any 400-level or higher course in the CE department).

The construction management curriculum includes a Minor in Management from the Anderson School of Management. The minor requires Mgt 202, Stat 145, and Econ 105/106 as well as Mgt 300 and Mgt 310 and one of the 300-level management electives on the list with a grade of C- or better.

Senior Capstone Course

The final capstone course, CE 499L: Design of Civil Engineering Systems (for engineering students) or CE 497L: Design Construction Integration (for CM students), is a culmination of all of your studies and can be taken only during your final semester, after you have taken all the prerequisite courses and several of the electives. Student must have an approved Application for Undergraduate Degree on file before being allowed to take CE 499L or CE 497L.

Course Offerings

Most 300 and 400-level departmental courses are taught only once a year. If you are not careful, you may find that a course is not offered during the semester you need it, and you will lose a year in a sequence of courses. Be sure to consult your advisor and plan ahead.

Cooperative Education/Internships

You may find it helpful to your understanding of civil engineering, construction engineering, or construction management as well as to your choice of an area of specialization to participate in some kind of cooperative education or internship program. These programs allow you to work in an industrial setting and give you experience in the work world to augment your academic education. Please note that a one-credit internship (CE 495) is required for all construction engineering and construction management students.

UNM's Career Services Office can help provide placement with an employer, either locally or at other locations. Such placements are usually for a semester and adjacent summer. The great advantages of a formal internship or cooperative education assignment are that you get to understand the application of what you have learned, and you acquire experience that is valuable when you look for permanent employment. Employers value such experience, and many students return to their co-op employers after graduation. If a work experience interests you, talk it over with your advisor, because taking a semester away from school will require a careful rescheduling of your

courses.

Independent Study

During your senior year, you can choose to pursue independent study under the direction of a departmental faculty member. You may receive credit for that course (CE 491-492, Special Topics in Civil Engineering) as a Depth Elective for civil engineering, in the category in which the professor is assigned. The CE faculty members, their specialties and contact information are found at <http://civil.unm.edu/faculty-staff/index.html>.

Graduation with Honors

Baccalaureate Honors at graduation are automatically awarded subject to the University requirements shown in the UNM Catalog (Undergraduate Program, Baccalaureate Honors).

Departmental Honors are not automatic. You must apply, be accepted by the department, and have a faculty member agree to work with you. You should apply by the end of your junior year so you can take at least six hours of honors independent study (CE 493-494) by the time you graduate. See the Coordinator of Program Advisement for more information and an application.

Shared Credit Program

The School of Engineering has developed a Shared Credit Degree Program designed to allow students to complete a BS and MS, or a BS and MENG degree, in an abbreviated time period (usually five years, depending upon the student's mathematics preparation upon entering UNM as a first-year student). To accomplish this, some courses are counted towards both the Bachelor's and Master's degrees. High-achieving students can earn up to 12 credit hours that count towards both their undergraduate and graduate degrees by selecting upper-level electives that are aligned with their future graduate program.

Students can apply to the program during the junior year of their BS program after completing 75 credit hours applicable to their BS degree. In order to be eligible for the program, students must have already been admitted to their BS degree program. Admission to the graduate portion of this program is provisional and not finalized until the student satisfactorily completes the requirements for the BS degree. Admission requirements to the CE shared credit program include a minimum GPA of 3.5. Students who are successfully admitted to the shared credit program do not need to complete the GRE for admission to graduate school.

The curriculum for each student is approved by the Director of Undergraduate Studies, the Director of Graduate Studies, and the Coordinator of Program Advisement. Students are required to submit an application form and a proposed plan of courses (<http://civil.unm.edu/admissions/soe-shared-credit-degree-program.html>). Students are allowed to apply up to 12 credit hours of coursework to both their Bachelor's and Master's degrees. These courses will be from the students' upper level technical electives. All courses must be taken at the graduate level and must comply with their programs of study at both the Bachelor's and Master's levels.

Application for Degree

During the second semester of your junior year, or prior to enrollment in the 100th hour toward your degree, you must complete an Application for the Undergraduate Degree form, which is available from the Coordinator of Program Advisement. This form indicates the additional courses you plan to take to complete your degree requirements. The Director of Undergraduate Programs will carefully review the completed form to verify that all the departmental and university requirements have been satisfied. When done in a timely fashion, this ensures that your final year of study will result in a BS degree. If you postpone submitting your application until the “final” semester, you may find that you need to take additional courses, thus delaying your graduation. **IMPORTANT:** You **must** submit this application by the end of the semester *prior* to the one in which you intend to graduate, or you will not be allowed to take CE 499, Design of Civil Engineering Systems (civil and construction engineering students) or CE 497L, Design Construction Integration (construction management students), which is required in your last semester.

Professional Certification

The Fundamentals of Engineering (FE) is a national examination which all BSCE and BSConE students are required to take before graduating. Passing the FE exam and earning a BS degree are the first steps toward professional licensure, which you enter in the status of Engineering Intern. After a suitable period of practice in the profession and passing of the Professional Engineering exam, you achieve the status of Professional Engineer (P.E.) and are professionally licensed in whatever state(s) you practice. Most civil engineers find it necessary to pursue licensure, both for reasons of professional status and to ensure the health and safety of the public.

There are usually review sessions for the FE exam held each semester, and you will find them helpful as you prepare yourself to take it. Instructions for taking the exam are available at: <http://www.ncees.org/>. There is no application deadline. However, a graduating senior must take the exam well before the official date of graduation so that the Coordinator of Program Advisement can certify that he/she has taken the exam.

Likewise, construction managers are certified through an exam administered by the American Institute of Constructors (AIC) (<http://www.professionalconstructor.org/>). BSCM graduates are required to take the Associate Constructor (AC) Level I exam in their senior year. Exams are held each spring and fall.

Part-Time Work

If you can avoid working and instead devote full time to your classes, you will finish faster and will enjoy focusing exclusively on your studies. However, if you do find it necessary to work, you should try to select a technical job with a flexible schedule that will allow you to pursue your studies as a first priority. You will need to balance the demands of work and study by reducing your academic load. This causes problems with scheduling and course sequences and invariably leads to a longer program. For this reason, you will want to talk to your advisor about a suitable academic load. The faculty have found it effective to advise students to work no more than 15 hours per week if they plan to take 12 credit hours of academic work.

Student Activities

Many of our graduating students tell us that they wished they had done several things

differently during their time at UNM. Their most common advice to incoming students includes: more involvement with student activities, better communication and interaction with the faculty, following an advisor's counsel, and paying more attention in classes. These are excellent recommendations for you as you enter the department.

You will find that participation in extracurricular activities enriches your experience at the university. There are a wide range of organizations and activities both in the larger university and in the department, and participation provides social association, leadership opportunities and professional development. Most students join and become active in a student chapter of a professional society. This department hosts chapters of the American Society of Civil Engineers (ASCE), the Associated General Contractors (AGC), Homebuilders Association (HBA), and the Institute of Transportation Engineers (ITE). These organizations typically sponsor speakers, service projects, national competitions and social events, and your student membership is the start of a lifelong association that is recognized by every employer. Student chapters of American Indian Science and Engineering Society (AISES), Society for Women Engineers (SWE), Women in Science and Engineering (WISE), Engineers Without Borders (EWB-USA), and other organizations are sponsored at the School of Engineering level. The faculty encourage you to be active in organizations.

The department also sponsors a chapter of the national honorary society for civil engineering, Chi Epsilon. Membership in Chi Epsilon, reserved for juniors and seniors who have achieved academic excellence, is recognized by all employers nationwide. Tau Beta Pi is an engineering-wide national honorary society to which civil engineering students may also be invited. If you have excellent grades and six hours of a foreign language, you may be eligible for Phi Beta Kappa, the oldest and most respected honorary society.

Scholarships

There are a wide variety of scholarships available to students through the university, the School of Engineering (Engineering Student Services) and the department. The Civil Engineering department has funding for deserving students in the department, both on the basis of scholarship and need. The annual application deadline is usually around June 1. These will be advertised when they are available via email and on the department's web site.

Graduate Studies

Earning a BS degree is just the first step in your professional career. It provides only the foundation, and you will be continually called upon to learn new things as your career advances. Most engineers find it necessary to take advanced studies as their practices become more specialized. Pursuing the MS or MEng degree allows you the opportunity to learn more about your chosen specialty, and many students find it most efficient to continue directly after completion of the BS. Students with a GPA of 3.0 or over and who are within 10 hours of graduation can take courses for graduate credit, provided that all requirements of the BS degree are also fulfilled.

Core Curriculum Electives for the Civil Engineering Department

The following is the list of Core Curriculum choices for students entering the Civil Engineering Department. All core courses must be completed with a grade of C (not a C-) or better. **The bolded course numbers are those already required in our degree programs.** More information on the core can be found at <http://students.unm.edu/advisement/core-sheet.pdf>.

1. **Writing and speaking.** (9 hours) Three courses chosen from:
 - ✧ English **110** (Composition I) or **112** (Composition I and II) or **113** (Enhanced Composition) and **120** (Composition III), plus an additional course chosen from **219** (Technical and Professional Writing) or 220 (Expository Writing)
 - ✧ Communication and Journalism 130 (Public Speaking)
 - ✧ Philosophy 156 (Reasoning and Critical Thinking)

2. **Mathematics.** (3 hours) One course chosen from the following:
 - ✧ Math 121, 129, 150, **162, 163, 180**, 181, 215, Stat 145
 - ✧ Civil and Construction Engineering Students must take Math 162 and 163.
 - ✧ Construction Management students must take Math 180 and Stat 145.

3. **Physical and Natural Sciences.** (7 hours) Two courses chosen from the following courses, including one laboratory:
 - ✧ Civil Engineering Students must take Chemistry **121-123L**, Bio **110** or EPS **101**, and Physics **160, 161**
 - ✧ Construction Engineering students must take Chemistry **121-123L**, Bio **110** or EPS **101**, and Physics **160, 161**
 - ✧ Construction Management students must take EPS **101**, Chem **121-123L**, and Physics **151**

4. **Social and Behavioral Sciences.** (6 hours) Two courses chosen from the following:
 - ✧ Africana Studies 109 (Introduction to Comparative Global and Ethnic Societies)
 - ✧ American Studies 182 (Introduction to Environment, Science & Technology), 185 (Introduction to Race, Class & Ethnicity)
 - ✧ Anthropology 101 (Introduction to Anthropology), 110 (Language, Culture and the Human Animal), (130 (Cultures of the World)
 - ✧ Chicana and Chicano Studies 109 (Introduction to Comparative Global and Ethnic Societies)
 - ✧ Community Regional Planning 181 (Introduction to Environmental Problems)
 - ✧ Economics **105** (Introductory Macroeconomics) or **106** (Introductory Microeconomics)
 - ✧ Geography 102 (Human Geography)
 - ✧ Linguistics 101 (Introduction to the Study of Language); AOA Anthropology 110
 - ✧ Native American Studies 109 (Introduction to Comparative Global and Ethnic Societies)

- ✧ Political Science 110 (The Political World), 200 (American Politics), 220 (Comparative Politics), 240 (International Politics)
 - ✧ Psychology 105 (General Psychology)
 - ✧ Sociology 101 (Introduction to Sociology)
 - ✧ Sustainability Studies 109 (Introduction to Comparative Global and Ethnic Societies)
 - ✧ Women Studies 109 (Introduction to Comparative Global and Ethnic Societies)
3. **Humanities.** (6 hours) Two courses chosen from among the following:
- ✧ Africana Studies 104 (Introduction to Africana Studies)
 - ✧ American Studies 186 (Introduction to Southwest Studies)
 - ✧ Chicana and Chicano Studies 201 (Introduction to Chicana and Chicano Studies)
 - ✧ Classics 107 (Greek Mythology), 204 (Greek Civilization), 205 (Roman Civilization)
 - ✧ Comparative Literature and Cultural Studies 222 (Fairy and Folk Tales), 224 (Literary Questions)
 - ✧ English 150 (The Study of Literature), 292, 293 (World Literatures)
 - ✧ Foreign Languages (M Lang) 101 (Approaches to Languages and Cultures)
 - ✧ Geography 140 (World Regional Geography)
 - ✧ History 101, 102 (Western Civilization), 161, 162 (History of the United States), 181 (History of Early Latin America), 182 (Modern Latin American History)
 - ✧ Honors Legacy Seminars at 100 and 200 levels
 - ✧ Philosophy 101 (Introduction to Philosophical Problems), 201 (Greek Philosophy), 202 (Modern Philosophy)
 - ✧ Religious Studies 107 (Living World Religions), 263 (Eastern Religions), 264 (Western Religions)
4. **Foreign Language** (non-English language minimum 3 hours). One course chosen from any of the lower division non-English offerings of the Departments of Linguistics (including Sign Language), Spanish and Portuguese, Foreign Languages and Literatures, and foreign languages in other departments and programs.
5. **Fine Arts.** (3 hours) One course chosen from among the following:
- ✧ Architecture 121 (Introduction to Architecture)
 - ✧ Art History 101 (Introduction to Art), 201, 202 (History of Art I, II)
 - ✧ Dance 105 (Dance Appreciation)
 - ✧ Fine Arts 284 (Experiencing the Arts)
 - ✧ Media Arts 210 (Introduction to Film)
 - ✧ Music 139 (Music Appreciation), 142 (Rock Music Appreciation)
 - ✧ Theatre 122 (Theatre Appreciation)

Students may instead elect to take one three-credit studio course offered by the Departments of Art and Art History, Music, Theatre and Dance, and Media Arts to fulfill this requirement.

Many courses in UNM's core curriculum can be satisfied by taking Advanced Placement courses in high school and achieving a specified score on an AP test. See

<http://catalog.unm.edu/catalogs/2016-2017/admissions.html> under College Board Advanced Placement Program.

CLEP (College Level Examination Program) Subject Exams can also be used for credit for specific courses; contact the School of Engineering for details.

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