Undergraduate Guide for Architectural, Civil and Environmental Engineering Students

Fall 2020

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# CEES Faculty

**Director—Randall L. Kolar (CEC 334B)**

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<th>ENVIRONMENTAL ENGINEERING/SCIENCE</th>
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**AEI Student Chapter Advisor** – Jeffery S. Volz  
**ASCE Student Chapter Advisor** – Jeffery S. Volz  
**Chi Epsilon Advisor** – P. Scott Harvey  
**ESSA Advisor** – Robert Nairn  
**SWB Advisor** – David Sabatini
The Engineering Accreditation Commission (EAC) of ABET requires accredited engineering programs to publish their Mission Statement, Student Outcomes and Program Educational Objectives. The architectural engineering, civil engineering and environmental engineering programs are accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org.

MISSION STATEMENT

Through a community of scholars committed to excellence in research and teaching, the mission of CEES is to provide our students with the technical education and critical thinking skills needed to lead the country in addressing the complex infrastructure and environmental problems facing today's society.

Student Outcomes

Student Outcomes describe what students are expected to know and be able to do by the time of graduation. The Student Outcomes for engineering students in CEES are:

   (1) an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics

   (2) an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors

   (3) an ability to communicate effectively with a range of audiences

   (4) an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts

   (5) an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives

   (6) an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions

   (7) an ability to acquire and apply new knowledge as needed, using appropriate learning strategies

Program Educational Objectives Program educational objectives (PEOs) are broad statements that describe what graduates are expected to attain within a few years of graduation. Program educational objectives are based on the needs of the program's constituencies. The PEOs for CEES engineering graduates are:
Program Educational Objective 1: CEES alumni will have embarked on successful careers in areas associated with the development, implementation and management of architectural, civil or environmental engineering systems.

Program Educational Objective 2: CEES alumni will advance in their careers and continue their professional development through continuing education and lifelong learning.

1.0 ACADEMIC PROGRAM PLANNING
When you enroll in CEES we will appoint a faculty member to serve as your advisor. Your advisor will help you prepare an academic program plan, select courses, and offer advice on other matters. If you have a question regarding a specialty area within the school, you are encouraged to discuss the matter with a faculty member in that discipline. You should assume the primary responsibility for planning a coherent academic program that achieves your educational objectives and satisfies the requirements for graduation.

Students graduating from CEES must meet a number of criteria. The requirements for the Bachelor of Science in Architectural Engineering (130 hours), Bachelor of Science in Civil Engineering (126 hours) and Bachelor of Science in Environmental Engineering (125 hours) are located at the back of this booklet. In order to graduate, you must successfully complete semester hours noted with a minimum retention grade point average of 2.00 in all University of Oklahoma courses, all courses taken anywhere, all major (at OU & combined) courses and all courses required for the bachelor of science degree. In addition, you must have a minimum C grade in every course offered for your degree.

You must be admitted to the Gallogly College of Engineering in order to enroll in all ENGR and CEES courses numbered 3XXX or greater, as well as in English 3153 (Technical Writing). For Gallogly College of Engineering admission requirements, refer to “Policy on Admission of Undergraduate Students” in the current OU General Catalog.

It is your responsibility as a student to follow the course requirements for graduation, but your advisor will help you based on her/his knowledge at the time of each advising conference. Advisors can assist you in optimizing your learning experiences at OU. Failure to follow the advisor's recommendations can prolong the time required to earn a degree and result in probation and suspension. Your advisor has the authority to withhold their approval if your selection of courses is inappropriate or unwise. Remember that both course and grade prerequisites are necessary for every course.

1.1 Accelerated B.S./M.S. Degree
The combined BS/MS program is offered to qualified undergraduate students in CEES who wish to pursue their graduate education while completing their undergraduate degree requirements. Students accepted into the combined BS/MS program can apply
two professional elective courses (six credit hours) to simultaneously satisfy the requirements of both the BS and MS degrees. With proper planning in the final year, students can initiate the thesis research option or the course work only option in their senior undergraduate year and complete the MS in one additional year beyond their BS degree. Architectural Engineering majors will receive a BS in Architectural Engineering and MS in Civil Engineering through this program. Students interested in pursuing the combined BS/MS program are encouraged to inquire about their eligibility with their faculty advisor. It is suggested that the application process be completed by September 1st of the junior year.

1.2 Williams Student Services Center (FH 112)
The Williams Student Services Center, located in 112 Felgar Hall, assists students with the following matters:

- retention
- transfer equivalencies (for lower division courses)
- repeat/forgiveness policy
- general education questions
- appropriate curriculum
- petitions to add/drop
- suspension petitions
- complete withdrawal
- Degree Navigator corrections/updates
- graduation verification
- general OU policy information
- general assistance if you don’t know where to go

1.3 Transfer Students
Students transferring into CEES may notice that the degree audit in Degree Navigator has placed courses into a category at the end called “excess coursework”. It is possible that some of this coursework can be applied towards your degree. Please contact an advisor in WSSC for the correct procedure to request a review.

1.4 Graduating Seniors
Graduating seniors should visit the Williams Student Services Center for TWO (2) graduation checks: one in the semester BEFORE you plan to graduate; and one EARLY in the semester you plan to graduate. In addition, you must schedule and attend an exit interview with the CEES director towards the end of your last semester.

2.0 STUDENT ADVISING AND ADVANCE REGISTRATION
If you have been admitted to the Gallogly College of Engineering, meet current retention standards, and have no unpaid fines, overdue books or parking tickets you can participate in advance registration. Advance registration for fall and summer is held during the
preceding spring semester, and advance registration for the spring semester is held during the preceding fall semester. With a few exceptions, advance registration is conducted according to classification and in varying alphabetical order of students’ last names.

Prior to the advance registration period, CEES holds advising sessions for all CEES undergraduate students. Advising periods are scheduled each semester. Students should check their e-mail or inquire in CEC 334 for the advising schedule. Students who do not attend one of the advising periods forfeit their opportunity to register during the advance registration period and will only be advised once freshmen begin enrolling.

**Students must sign up for a specific date and time slot using iAdvise.** Students who do not sign up for a specific date and time slot through iAdvise cannot be guaranteed advisement on a walk-in basis. Follow the steps below to schedule your advising appointment.

1. Log into https://iadvise.ou.edu/.
2. Under *Departmental-level Advisement*, select your program of study.
3. Select *Make Group Appointment*.
4. Choose the desired Advising Group Session and click the corresponding “Make Reservation” button.
5. Add your phone number and finalize your advisement appointment by clicking the “Make Reservation” button.
6. The next window will verify that your reservation has been saved.
7. You will be sent an email confirmation of your scheduled advising appointment.

**Note: Failure to check-in during scheduled advisement time may result in loss of appointment time.**

Please follow these steps:

1. Attend an **advising session**. After attending an advising session, special problems or circumstances may necessitate your scheduling an appointment with your faculty advisor. **All CEES students are assigned an individual faculty advisor who can answer questions between group advising sessions.** Please feel free to contact your faculty advisor for an appointment.

Please prepare the following prior to advisement:

1. Copy of your major flow chart
   a. mark through completed and current courses
   b. circle courses in which you want to enroll in the upcoming semester
   c. plan to enroll for the upcoming semester
If you need special permission for a CEES class, you must email the instructor with cc: to Laura Swan at lauraswanATou.edu with the following information:

1. your name
2. your OU ID number
3. course number
4. section number
5. course name
6. copy and paste the error message you receive when you enroll into the email message

You must obtain special permission for English 3153 from the English Department.

Before enrolling in any course, you should determine that you satisfy the course prerequisites. The CEES curriculum flow charts are located at the back of this guide and the General Catalog is available on-line at oZONE.ou.edu. Prerequisites are enforced for all classes. You will be administratively removed from any course you enroll in without the required pre-requisites. Remember that a minimum “C” grade is needed in all courses and is a part of the prerequisite.

All students must take one of the following capstone courses prior to graduation: CEES 4993 (AE Senior Design), CEES 4903 (CE Senior Design) or CEES 4923 (EnvE Senior Design). All three courses are offered only in the spring semester and must be taken by students scheduled to graduate that spring semester or the subsequent summer or fall semesters. Students planning to graduate in the summer or fall semesters must have completed 90 credit hours of the Architectural, Civil, or Environmental Engineering curricula prior to enrolling in their capstone course. All engineering students enrolling in their capstone course are required to attempt the Fundamentals of Engineering (FE) examination during the semester in which they plan to graduate. CEES will pay a portion of the State Board fee for all CEES students who pass the FE examination.

All prerequisites must be met to enroll in capstone senior design courses. Following is a list of prerequisites by major.

**Architectural Engineering**
- CEES 413 Building Lighting and Electrical Systems
- AME 4653 Air Conditioning System Design
- CEES 4803 Professional Practice
- CEES 3364 Soil Mechanics
- CEES 3663 Structural Design Steel I

**Civil Engineering**
- CEES 3213 Water Resources Engineering
- CEES 4803 Professional Practice
- CEES 3364 Soil Mechanics
Environmental Engineering

- CEES 4114 Aquatic Chemistry
- CEES 4324 Environmental Biology & Ecology
- CEES 4813 Professional Practice Environmental
- CEES 3364 Soil Mechanics
- CEES 3213 Water Resources Engineering

3.0 PROFESSIONAL ELECTIVES

CEES has three engineering degree programs; architectural, civil, and environmental. Within the civil and environmental engineering programs, there are different areas of emphasis. Students can use Professional Electives within the civil or environmental engineering curricula to focus on particular areas to obtain either a general or specialized background. Both paths have merits.

Selecting electives from several areas will give you a chance to explore various fields before choosing a specialty. Few engineers follow a single track throughout their careers; changes to new areas are common and a broad education allows easy transition. For the person who desires a general civil engineering career, a broad background is usually required to satisfy the varied demands. Also, most civil engineering projects encompass many areas of design. A general background helps communicate across specialty lines.

Specialization may be the choice for those students who have clearly-defined career goals and want to focus on one area only. By selecting courses in a single area, it is possible to be well qualified for a position within a particular field with only a baccalaureate degree. In addition, specialization can provide impressive qualifications and capabilities for graduate study.

We suggest that you carefully consider both the generalization and specialization options and consult with faculty, practicing engineers and your advisor before making a decision. Whatever path you choose, please recognize that focus in your selection of electives is desirable. There is no wisdom in a random selection of professional electives.

Professional electives are 3000-level junior, 4000-level senior and 5000-level graduate courses. These electives have, as prerequisites, required engineering or CEES core courses. Make certain that you have the appropriate course and grade prerequisites for each professional elective.

University of Oklahoma regulations and CEES policy impose certain restrictions when selecting professional electives. No 6000-level courses can be taken by undergraduate students, nor can 5000-level courses be taken by students with junior standing. Also, correspondence courses and the generic course, CEES 5020—Problems in CEES, are unacceptable as professional electives.
3.1 **Architectural Engineering (Table 1)**
Architectural engineers design buildings and other structures, but the design of a building involves far more than its appearance. Buildings also must be functional, safe, and economical and must suit the needs of the people who use them. Architectural engineers consider all these factors when they design buildings and other structures. Architectural engineers design a wide variety of buildings, such as office and apartment buildings, schools, churches, factories, hospitals, houses, and airport terminals. They also design complexes such as urban centers, college campuses, industrial parks, and entire communities. In addition, they may advise on the selection of building sites, prepare cost analysis and land-use studies, and do long-range planning for land development.

Architectural engineers develop final construction plans that show the building’s appearance and details for its construction. Accompanying these plans are drawings of the structural system; air-conditioning, heating, and ventilating systems; electrical systems; communications systems; plumbing; and, possibly, site and landscape plans. Although they have traditionally used pencil and paper to produce design and construction drawings, architectural engineers are increasingly turning to computer-aided design and drafting (CADD) technology for these important tasks.

3.2 **Civil Engineering Electives (Table 2)**
Civil engineering is the oldest of the modern engineering disciplines with historical roots dating back to the 1700s. Responsibilities of the first civil engineers increased during the industrial revolution and included the construction of canals, roads and railroads.

Civil engineers are responsible for the design and construction of society’s infrastructure, such as buildings, highways, bridges, mass transit systems, dams and locks, and municipal water and sewage treatment systems. They often are responsible for planning, managing, operating and maintaining these facilities. Consequently, civil engineering is frequently referred to as “the people-serving profession.”

Spurred by general population growth and an expanding economy, more civil engineers will be needed to design and construct higher-capacity transportation, water supply and pollution control systems as well as large buildings and building complexes. They also will be needed to repair or replace existing roads, bridges and other public structures.

3.2.1 **Geotechnical Engineering Emphasis**
Geotechnical engineering relates to the behavior of structures, foundations and geologic media such as soils and rocks. The geotechnical engineer designs earth and rock-filled dams, levees, tunnels, braced excavations and structural foundations. This field leads to careers in analysis, design, construction and maintenance of structural foundations, pavements, tunnels, dams and other facilities, and also in material testing and general civil engineering consultant works. Graduates typically work for consulting firms, state departments of transportation and government organizations.
3.2.2 Environmental/Water Resources Emphasis
Civil engineers are generally charged with developing the infrastructure needed to provide safe drinking water and wastewater collection and treatment systems. Water resources engineering can involve the design of dams, pipelines, water treatment plants, water distribution systems, and storm water control and flood prevention systems. Wastewater treatment engineers design sewage collection systems and wastewater treatment facilities. Graduates are frequently employed by governmental agencies and private companies.

3.2.3 Structural Engineering Emphasis
Structural engineering involves the analysis, design and construction of buildings, bridges, offshore platforms and other facilities. Structural engineers select the appropriate materials and ensure that the structure will have sufficient strength and stiffness to fulfill its intended purpose. Careers are available in structural analysis and design, general civil engineering consulting work, and construction. Graduates are frequently employed by private companies, architectural firms and governmental agencies.

3.3 Environmental Engineering Electives (Table 3)
Environmental engineering began with the demand for better water and wastewater treatment technologies. Later, the field expanded to include hydro-mechanics processes, hydrology and water resources engineering. Today, environmental impact assessment and pollution control are also included. In CEES, we also work in hazardous and solid waste management and disposal. Careers are available in water resources (groundwater and reservoir development), water treatment, sewage treatment, industrial waste management and solid and hazardous waste management. Graduates typically work for federal, state and local governments, consulting firms and industry.
### Table 1. Approved Professional Electives and Areas of Emphasis for Bachelor of Science in Architectural Engineering Degree

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<tr>
<th>Geotechnical Engineering</th>
<th>Environmental Engineering</th>
<th>Structural Design</th>
<th>Structural Analysis</th>
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<td>Geomatics</td>
<td>CEES 5433</td>
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<td>Matrix Methods of Structural Analysis</td>
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<td>Advanced Mechanics of Materials</td>
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<td>CEES 4673</td>
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<td>CEES 5673</td>
<td>Dynamics of Structures</td>
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<td>Structural Design of Pavements</td>
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<td>CEES 5763</td>
<td>Introduction to Finite Element Method</td>
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<tr>
<td>CEES 5020 (d)</td>
<td>Bridge Engineering Fundamentals</td>
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<td>CEES 5020 (e)</td>
<td>Structural Reliability</td>
<td>CEES 5783</td>
<td>Concrete II</td>
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<td>CEES 5793</td>
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<td>Introduction to Soil Dynamics</td>
<td>ENGR 4513</td>
<td>Intro. to Sustainable Engineering</td>
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Table 2. Approved Professional Electives and Areas of Emphasis for Bachelor of Science in Civil Engineering Degree

<table>
<thead>
<tr>
<th>Geotechnical Engineering</th>
<th>Environmental Engineering</th>
<th>Structural Design</th>
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<th>Structural Systems</th>
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<td>Soil-Structure Interaction</td>
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<td>CEES 5423</td>
<td>Environmental Geotechnology</td>
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<td>CEES 4273G</td>
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<td>CEES 4373/5373</td>
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<td>Colloid Surface Science</td>
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<td>CEES G5673</td>
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<td>CEES 4753G</td>
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<td>Air Quality</td>
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<tr>
<td>CEES 5020 (a)</td>
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<td>CEES 5763</td>
<td>Introduction to Finite Element Method</td>
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<tr>
<td>CEES 5020 (b)</td>
<td>Plastic Analysis of Structures</td>
<td>CEES 5773</td>
<td>Structural Design – Steel II</td>
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<tr>
<td>CEES 5020 (c)</td>
<td>Structural Stability</td>
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<td>Structural Design – Concrete II</td>
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</tr>
<tr>
<td>CEES 5020 (d)</td>
<td>Bridge Engineering Fundamentals</td>
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<tr>
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<td>Structural Reliability</td>
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<td>Advanced Soil Mechanics</td>
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Table 3. Approved Professional Electives and Areas of Emphasis for Bachelor of Science in Environmental Engineering Degree

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<thead>
<tr>
<th>Water Supply &amp; Resources</th>
<th>Environmental Systems Modeling</th>
<th>Environmental Chemistry and Biology</th>
<th>Wastewater Management</th>
<th>Solid &amp; Hazardous Waste Management</th>
<th>Construction</th>
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<td>MATH 4753</td>
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1. One elective can be chosen from list of approved science electives.

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<thead>
<tr>
<th>Course No.</th>
<th>Title</th>
<th>Course No.</th>
<th>Title</th>
</tr>
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<tbody>
<tr>
<td>CEES 3453</td>
<td>Introduction to Construction Management</td>
<td>CEES 5423</td>
<td>Environmental Geotechnology</td>
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<td>CEES 4123</td>
<td>Open Channel Flow</td>
<td>CEES 5343</td>
<td>Advanced Soil Mechanics</td>
</tr>
<tr>
<td>CEES 4243</td>
<td>Water Technologies for Emerging Regions</td>
<td>CEES 5624</td>
<td>Biological Waste Treatment</td>
</tr>
<tr>
<td>CEES 4273G</td>
<td>WaTER Technical Field Methods</td>
<td>CEES 5673</td>
<td>Colloid and Surface Science</td>
</tr>
<tr>
<td>CEES 4324</td>
<td>Environmental Biology and Ecology</td>
<td>CEES 5833</td>
<td>Ground Water Quality Protection</td>
</tr>
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<td>CEES 4373/5373</td>
<td>Water Resources Management</td>
<td>CEES 5843</td>
<td>Hydrology</td>
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<td>CEES 4453</td>
<td>Geomatics</td>
<td>CEES 5853</td>
<td>Ground Water and Seepage</td>
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<td>CEES 4473</td>
<td>Soil Science</td>
<td>CEES 5873</td>
<td>Water Quality Management</td>
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<td>CEES 5283</td>
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<tr>
<td>CEES 5363</td>
<td>Ecological Engineering Science</td>
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</tbody>
</table>
3.4 **Professional Electives Outside of CEES**
Under special circumstances, junior, senior and graduate courses from other departments are acceptable professional electives if they are part of a coherent elective program. Such courses must be approved by your advisor.

Appropriate professional electives can be found in Aerospace Engineering, Architecture, Biological Engineering, Biology, Chemical Engineering, Chemistry, Computer Science, Electrical Engineering, Industrial Engineering, Mathematics, Mechanical Engineering, Microbiology, Petroleum Engineering, Physics, Statistics, Meteorology, and Geology.

4.0 **PREMEDICAL OPTION**
Students who wish to fulfill medical school admission requirements must consult with the OU Premedical Professions Advising Office ([https://www.ou.edu/advising/about_advising/pre-professionaladvising](https://www.ou.edu/advising/about_advising/pre-professionaladvising)) at the beginning of their degree programs. This office can provide students with current information about medical school admission requirements and assist in identifying the appropriate program of study. Careful consultation with the Premedical Professions Advising Office early in the curriculum is required so that the student can choose appropriate general education, elective, and other courses that will allow the student to complete both the premedical and CEES degree requirements as efficiently as possible. Students who wish to complete a B.S. degree in Architectural, Civil, or Environmental Engineering and also fulfill medical school admission requirements may, with their CEES advisor’s approval, choose one professional elective from among the upper division life science and related courses that will fulfill medical college admission requirements. Students seeking to complete medical school admissions will require coursework beyond the credit hours normally required for the B.S. degree in CEES.

5.0 **REQUIRED SOCIAL SCIENCE AND HUMANITIES COURSES**
Engineers must understand their social responsibilities and be able to consider related factors in making professional decisions. Therefore, studies in the humanities and social sciences should meet both the objectives of a broad education and those of the engineering profession. The humanities consist of those areas concerned with man and his culture (e.g., history, literature, philosophy and religion); whereas, the social sciences are the studies of individual relationships in and to society (e.g., anthropology, economics, psychology, geography, political science and sociology).

ABET requires that courses taken in humanities and social sciences provide the student both breadth and depth and should not be a selection of unrelated introductory courses. The Gallogly College of Engineering requires that a minimum of one of these must be upper division and at least two should be in the same or closely-related areas.

In addition to ABET criteria, the University of Oklahoma General Education Requirements (Table 4) mandate that students take two courses (6 credits) in **social science** and four courses (12 credits) in **humanities**. The humanities requirement consists of: one course (3 credits) in **understanding artistic forms**; two courses (6
credits) in **western civilization and culture**; and one course (3 credits) in **non-western culture**. Furthermore, according to State Regents' ruling, one of the social science courses must be Political Science 1113 (Government of the United States) and the western civilization and culture courses must include either History 1483 (United States, 1492-1865) or History 1493 (United States, 1865-present). At least one of the courses (minimum of 3 hours) used to satisfy the general education requirements must be at the upper division level.

Students may wish to explore other courses in the humanities (Table 5) and social sciences (Table 6), but it is imperative that they consult with their advisor or the Williams Student Services Center to make certain that they are satisfying both ABET and OU General Education Requirements. Only one humanities and one social science course can be used in your curriculum.

### 5.1 Foreign Language Requirements

To satisfy the OU General Requirements, non-international students must successfully complete two years of the same foreign language in high school or a two-semester sequence of a single language such as: Chinese, French, German, Greek, Hebrew, Italian, Japanese, Latin, Russian, Spanish, Arabic and American Indian languages in college.

An international student who graduates from a secondary school in which the language of instruction was not English has satisfied the language requirement through passing the TOEFL exam for admission to OU. An international student who graduates from a secondary school in which the language of instruction was English must meet the foreign language requirement of non-international students. Transcripts documenting foreign language study, or an advanced standing exam must be presented for completion of the general education foreign language requirement.
Table 4. Examples of Courses to Meet the OU General Education Requirements

<table>
<thead>
<tr>
<th>WESTERN CIVILIZATION AND CULTURE</th>
<th>HIST 1483</th>
<th>United States, 1492-1865, or</th>
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</thead>
<tbody>
<tr>
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<td>HIST 1493</td>
<td>United States, 1865-present, and</td>
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<td>HIST 3483</td>
<td>The Life of the Mind in America Since 1877</td>
</tr>
<tr>
<td>NON-WESTERN CULTURE</td>
<td>HIST 2683</td>
<td>History of Islam, or</td>
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<td>HIST 3853</td>
<td>Japanese Civilization to 1800, or</td>
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<td></td>
<td>HIST 3863</td>
<td>Modern Japan Since 1800</td>
</tr>
<tr>
<td>SOCIAL SCIENCE</td>
<td>PSC 1113</td>
<td>Government of the United States, and</td>
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<td></td>
<td>GEOG 4533</td>
<td>Geography of Europe</td>
</tr>
<tr>
<td>ARTISTIC FORMS</td>
<td>AHI 1113</td>
<td>Understanding Art, or</td>
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<td>AHI 2214</td>
<td>General Art History Survey I, or</td>
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<td>ENGL 2413</td>
<td>Introduction to Literature</td>
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### Table 5. Examples of Western Civilization Courses for Engineers

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<tr>
<td>PHIL 3313</td>
<td>Ancient Philosophy</td>
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<td>PHIL 3333</td>
<td>Survey of Modern Philosophy</td>
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<td>PHIL 3353</td>
<td>American Philosophy</td>
</tr>
<tr>
<td>PHIL 1213</td>
<td>Introduction to Ethics</td>
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<td>PHIL 3253</td>
<td>History of Ethics</td>
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<td>SOC 1523</td>
<td>Social Problems</td>
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### Table 6. Examples of Social Science Courses for Engineers

<table>
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<tbody>
<tr>
<td>ANTH 2513</td>
<td>Human Evolution</td>
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<tr>
<td>ECON 1113</td>
<td>Principles of Economics—Macro</td>
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<tr>
<td>ECON 1123</td>
<td>Principles of Economics—Micro</td>
</tr>
<tr>
<td>PSY 1113</td>
<td>Introduction to Psychology</td>
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</table>
6.0 SCHOLARSHIPS AND FINANCIAL AID
Several scholarship opportunities are available to CEES undergraduate students including entering freshmen. Scholarships typically are awarded both for potential academic ability and financial need. Scholarships are awarded by the school, alumni, consulting firms and private industry. Awards range from $500-$1500. Scholarship recipients should be aware of the School of Civil Engineering and Environmental Science Policy on Scholarship Recipient Obligations. This policy requires written acknowledgement to the sponsor and participation in the annual scholarship luncheon as well as professional activities. Scholarship students must obtain and familiarize themselves with the policy.

The deadline to apply to be considered for general freshman scholarships is December 15 and the deadline to apply for transfer scholarships is March 1 for Fall/Summer or November 1 for Spring. Scholarship applications for incoming freshmen and transfer students can be found at http://www.ou.edu/content/admissions/affordability/scholarships.html

Applications for current students are due February 1 and can be found at https://www.ou.edu/sfc/cash

In addition to the scholarships offered by the School of CEES and the Gallogly College of Engineering, students may qualify for other scholarships or forms of financial assistance, including tuition waivers, direct student loans, work-study, and coop programs with Oklahoma firms and government agencies. The Office of Financial Aid, 731 Elm Avenue, Norman, OK 73019-0230, can provide information on the national Direct Student Loan Program, the Guaranteed Loan Program, the University Work-Study Program, and additional programs and opportunities. Whether or not they are eligible for the Work-Study Program, students can obtain assistance in finding part-time jobs on the campus by applying to the Personnel Service Office, 905 Asp Avenue, Norman, OK 73019-0420.

7.0 FUNDAMENTALS OF ENGINEERING EXAMINATION
To obtain legal status as a professional engineer you must graduate from an accredited engineering program, obtain appropriate engineering work experience, and pass two standard examinations. These examinations are administered by the National Council of Examiners for Engineering and Surveying (NCEES). The Fundamentals of Engineering (FE) and the Principles and Practice of Engineering (PE) examinations are the primary licensure examinations for engineers. The eight-hour FE examination is open book and tests you in basic science, mathematics, engineering science and engineering economics. You are eligible to take the exam if you have completed 90 hours toward your engineering degree; however, it is recommended that you take the exam during the semester you plan to graduate. All CEES students must attempt the FE examination before receiving their baccalaureate degree.

8.0 STUDENT ACTIVITIES
Student groups provide an excellent opportunity to supplement classroom education through contact with faculty, practicing engineers and fellow students.
8.1 Architectural Engineering Institute (AEI)
The Architectural Engineering Institute is a nationally affiliated technical organization new to CEES here at the University of Oklahoma. The AEI student chapter was founded in 2006 by interested architectural and civil engineering students.

The purpose of AEI is to promote and disseminate knowledge regarding the profession of architectural engineering through study, research, and discussion. AEI also provides the opportunity for interaction between students and professionals in the field through sponsored site tours, seminars and social events.

All students interested in architectural engineering are welcome to attend all gatherings and are encouraged to become a member. For additional information, contact a student officer or the Student Chapter Faculty Advisor.

8.2 American Society of Civil Engineers (ASCE)
ASCE has established over 125 chapters in U.S. engineering colleges. The parent society keeps in touch with students and engineering education through these student chapters. Membership in the student chapter is open to all undergraduate and graduate CEES students.

ASCE meets each month, usually in the evening, and hosts speakers from the practice of engineering. In addition, they sponsor field trips, attend national, regional and local meetings of the parent organization, and coordinate the Gallogly College of Engineering Open House. For additional information, contact a student officer in the ASCE office or the Student Chapter Faculty Advisor.

8.3 Chi Epsilon
Chi Epsilon is the Civil Engineering Honor Society. It recognizes outstanding student achievements and promotes development of characteristics for a successful engineering career. The University of Oklahoma Chapter is part of a network of more than 60 chapters formed since the organization was founded at the University of Illinois in 1922. Membership in Chi Epsilon conveys both an honor and an obligation. To be eligible for membership, an undergraduate that has completed at least one-half of their coursework, must rank scholastically in the upper one-third of his or her class in a curriculum leading to a baccalaureate degree in Civil Engineering or a closely related curriculum. For more information, contact the Chapter Faculty Advisor.

8.4 Environmental Science Student Association (ESSA)
ESSA, which was established in 1992, is an independent organization of undergraduate environmental science students. Its major purpose is to invite speakers from academia, government, and industry to provide both technical perspectives on environmental problems, and career guidance. In addition, it provides networking opportunities for environmental science students, who usually do not take ES classes until their junior year, and consequently often don’t meet their peers until the third year of the program. Other activities include placement of newspaper recycling bins in Carson Engineering Center, organization of the first Environmental Fair at a local mall to bring current environmental
issues to area residents, and field trips to the Oklahoma Department of Environmental Quality laboratories. For more information, contact the Chapter Faculty Advisor.

8.5 Engineers' Club
The Engineers' Club fosters the high ideals of the engineering profession, stimulates interest in school and college activities and develops professional awareness and leadership qualities. Activities of the Engineers' Club include organization of OU Engineers' Week activities and Engineering Open House.

8.6 Society of Black Engineers (SBE)
SBE shares many of the same goals and objectives as the Engineers' Club, while directing attention to the challenges and needs of black students.

8.7 Society of Women Engineers (SWE)
SWE is a technical society with the objective of encouraging women who have chosen to study engineering. Through speakers, discussions and field trips, members are able to examine professional issues and challenges particular to women. Membership is open to both men and women.

8.8 Sooners Without Borders (SWB)
The mission of Sooners Without Borders (SWB) is to promote sustainable solutions for health, education, development and peace by engaging OU students, faculty and staff in multi-disciplinary service projects in both local and global communities. The purpose of SWB is to aid in the organization, publicity, and coordination of both domestic and international service projects undertaken by students, faculty and staff at the University of Oklahoma.

9.0 CURRICULA
The following flow charts are provided to help you in planning your coursework and are not intended to be exhaustive. This information presupposes that you are enrolled in a current curriculum.

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Accommodations on the basis of disability are available by contacting (405) 325-5913.