### GENERAL REQUIREMENTS

**Total Credit Hours** ............................................................ 155-157*

**Minimum Retention/Graduation Grade Point Averages:**
- Overall - Combined and OU .............................................. 3.00
- Major - Combined and OU ................................................. 3.00
- Curriculum - Combined and OU ........................................... 3.00

*A minimum grade of C is required for each course in the curriculum.

OU encourages students to complete at least 30-32 hours of applicable coursework each year to have the opportunity to graduate in five years.

<table>
<thead>
<tr>
<th>Year</th>
<th>FIRST SEMESTER</th>
<th>Hours</th>
<th>SECOND SEMESTER</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FRESHMAN</strong></td>
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<tr>
<td>ENGL 1113, Prin. of English Composition (Core I)</td>
<td>3</td>
<td>ENGL 1213, Prin. of English Composition (Core I), or</td>
<td>3</td>
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<tr>
<td>GEOL 1114, Physical Geology for Sci. &amp; Engr., or</td>
<td>4</td>
<td>EXPO 1213, Expository Writing (Core I)</td>
<td>4</td>
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<tr>
<td>*MATH 2934, Differential and Integral Calculus I (Core I)</td>
<td>4</td>
<td>*MATH 2924, Differential and Integral Calculus II</td>
<td>4</td>
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<tr>
<td>ENGR 1410, Freshman Engineering Orientation</td>
<td>0</td>
<td>PHYS 2514, General Physics for Engineering &amp; Science</td>
<td>4</td>
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<tr>
<td>CEE 1112, Intro. to CEEs</td>
<td>2</td>
<td>PSC 1113, American Federal Government (Core III)</td>
<td>3</td>
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<tr>
<td>ARCH 1112, Cultures of Collaborating, Creating &amp; Constructing</td>
<td>2</td>
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<tr>
<td>ARCH 2223, Methods III - Design Analytics</td>
<td>3</td>
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<tr>
<td><strong>TOTAL CREDIT HOURS</strong></td>
<td>18</td>
<td><strong>TOTAL CREDIT HOURS</strong></td>
<td>17</td>
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</tbody>
</table>

| **SOPHOMORE** | | | | |
| ARCH 2243, History of Architecture I (Core IV: Western Civilization & Culture) | 3 | CHEM 1315, General Chemistry (Core II) | 5 |
| *MATH 2934, Differential and Integral Calculus III | 4 | HIST 1483, U.S., 1492-1865, or | 3 |
| PHYS 2524, General Physics for Engr. & Science Majors | 4 | *MATH 1493, U.S., 1865-Present (Core IV) | 3 |
| CEE 1000, CEEs Seminar | 0 | CEE 1213, Computing Applications in CEEs | 3 |
| CEE 2113, Statics | 3 | CEE 2133, Mechanics of Materials | 3 |
| CEE 2223, Fluid Mechanics | 3 | | |
| **TOTAL CREDIT HOURS** | 17 | **TOTAL CREDIT HOURS** | 15 |

| **JUNIOR** | | | | |
| AME 2213, Thermodynamics | 3 | AME 3173, Heat Transfer | 3 |
| CEE 3625, Introduction to Dynamics for Architectural and Civil Engineers | 3 | CEE 1000, CEEs Seminar | 0 |
| CEE 3663, Structural Design – Steel I | 3 | CEE 3403, Materials | 3 |
| CEE 3413, Structural Analysis I | 4 | CEE 3663, Structural Design – Steel I | 3 |
| ENGR 3411, Electrical Circuits | 1 | CEE 4113, Building Lighting & Electrical Systems | 3 |
| ENGR 3401, Engineering Economics | 1 | | |
| **TOTAL CREDIT HOURS** | 16 | **TOTAL CREDIT HOURS** | 15 |

| **SENIOR** | | | | |
| AME 4653, Air Conditioning Systems | 3 | ANTH 4623, Approaches to Cross-Cultural Human Problems | 3 |
| CEE 1000, CEEs Seminar | 0 | or approved substitute (Core IV, Non-Western Civ.) | |
| CEE 3673, Structural Design – Concrete I | 3 | CEE 1000, CEEs Seminar | 0 |
| CEE 4453, Geomatics Engineering | 3 | CEE 4333, Foundation Engineering | 3 |
| CEE 4753, Structural Design — Wood | 3 | CEE 4993, Architectural Engineering Capstone | 3 |
| CEE 4903, Professional Practice | 3 | *Approved Elective: Core III: Social Science | 3 |
| **TOTAL CREDIT HOURS** | 15 | **TOTAL CREDIT HOURS** | 15 |

**Students are eligible for graduate status upon graduation with the Bachelor of Science in Architectural Engineering.**

| **FIFTH YEAR** | | | | |
| CEE 5021, Technical Communications | 1 | CEE 5020, Special Topics | 2 |
| *CEES 5980, Thesis Research, or Graduate-level Elective | 2-3 | *CEES 5980, Thesis Research or Graduate-level Elective | 2-3 |
| CEE Graduate-level Elective | 3 | CEE Graduate-level Elective | 3 |
| CEE Graduate-level Elective | 3 | CEE Graduate-level Elective | 3 |
| CEE Graduate-level Elective | 3 | CEE Graduate-level Elective | 3 |
| **TOTAL CREDIT HOURS** | 12-13 | **TOTAL CREDIT HOURS** | 13-14 |

*Students may enter the accelerated program based on the undergraduate degree pattern offered in the year they first enrolled in the Oklahoma State System of Higher Education or later.

†Non-thesis students only. Students pursuing the thesis option do not take CEEs 5020, Special Topics.

‡Dependent upon whether a student chooses the thesis or non-thesis option. Non-thesis option additionally requires: CEEs Graduate-level Elective (6 hrs.) and CEEs 5020 Special Topics (2 hrs.), and Comprehensive Exam to be taken in the last semester of study.

**NOTE:** Engineering transfer students may take ENGR 3410 in place of ENGR 1410.

Courses designated as Core I, II, III, IV, or Capstone are part of the General Education curriculum. Students must complete a minimum of 40 hours of General Education courses, chosen from the approved list.

†To be chosen from the University-Wide General Education Approved Course List. Three of these 12 hours must be upper-division (3000-4000). See list in the Class Schedule.

In the College of Engineering, in order to progress in your curriculum, and as a specific graduation requirement, a grade of C or better is required in each course in the curriculum. Please refer to the General Catalog for additional enrollment limitations.

Students must successfully complete prerequisite courses (with a minimum C grade) before proceeding to the next course.

• Two college-level courses in a single foreign language are required; this may be satisfied by successful completion of 2 years in a single foreign language in high school. Students who must take foreign language at the University will have an additional 6-10 hours of coursework.

§Students must complete a minimum of four semesters of CEEs 1000.

* MATH 1283, 2423, 2433, and 2443 sequence can be substituted for MATH 1914, 2924, and 2934.

Fourth- and fifth-year graduate courses must satisfy approved Civil Engineering requirements for the Master of Science.
1411 Building and Lighting Electrical Systems. Prerequisite: Mathematics 2423 or 2924; Physics 2524, Engineering 2413 or equivalent. Fundamental principles of electrical systems. Lighting topics include the determination of appropriate lighting quantity and quality, luminaires and lighting design procedures for residential, commercial and industrial buildings. Electrical topics will include service voltages, overcurrent protection, short circuit analysis and branch circuit design for buildings, and product and information sources.

G4333 Foundation Engineering. Prerequisite: 3364. Substructure analysis and design to meet various soil conditions; footings and rafts, shaving and underpinning, piles, cofferdams, caissons, breakwaters, piers, wharves, vibratory effects on foundations. (Sp)

4453 Geotechnics Engineering. Prerequisite: CEE 1213 and MATH 2433 or 2934, or permission of instructor. Geotechnical engineering design. Includes study of methods and test data to determine relative positions of features for mapping, engineering and construction plans. Topics include digital elevation, orientation, distance measurement, traversing and control surveys, accuracy, error sources, precise horizontal and zenith angle measurements, and introduction of global navigation satellite system. (Sp)

G601 Structural Design – Wood. Prerequisite: 3414 or equivalent. Material properties and behavior of wood. Analysis and design of solid and laminated structural members, connections, systems, trusses and arches. Current developments in structural wood design and research. (F)

4803 Civil Engineering Professional Practice. Prerequisite: senior standing in Architectural or Civil Engineering. Junior Seminar in Professional Practice. Introduction of professional practice. Introduces students to both technical and non-traditional aspects of professional practice. Technical emphasis includes discipline-specific instruction on the design process. Architectural engineers are trained in design of building planning and electrical systems. Civil engineers are trained on structural and foundation design. Both disciplines receive training on non-technical aspects of professional practice including organization, project management, ethics and communications. (Sp)

4993 Architectural Engineering Capstone. Prerequisite: CEE 3364, CEE 3663, CEE 3673, CEE 4111, CEE 4083 and AME 4653. A capstone course emphasizing design of structural components and environmental systems of buildings. Each student will be required to have knowledge and experience from prerequisite courses to address a real-world, open-ended design problem. Required for architectural engineering students. The capstone project will be under direct faculty supervision. (Sp)

G5020 Special Topics in Civil Engineering. 1 to 6 hours. Prerequisite: senior or graduate standing and permission of instructor. May be repeated with change of topic; maximum credit 12 hours. Examinations given. (Sp, Su)

G5021 Technical Communications. Prerequisite: CEE students standing or permission of instructor. Focused on enabling students to improve oral and written communications skills. Examines various types of technical publications, as well as methods and practices of effective oral presentation. Each student will be required to develop an oral presentation about his/her written product. (F)

G5980 Research for Master's Thesis. Variable enrollment, two to nine hours; maximum credit applicable toward degree, four hours. (F, Sp, Su)

COURSES IN ENGINEERING (ENGR)

2431 Electrical Circuits. Prerequisite: Mathematics 2423 or 2924; and Physics 2524 or concurrent enrollment. Introduction to basic concepts of steady and time-varying circuits. Basic concepts include DC circuits analysis, AC circuits, DC transients, static electrical fields, static magnetic fields, capacitors, inductors, and filters. (F, Sp)

3401 Engineering Economics. Prerequisites: Mathematics 1823 or 1914. Introduction to basic principles of engineering economics. Topics include value and interest, cash flow diagrams, cash flow patterns, equivalent of cash flow patterns, unusual cash flows and interest periods, evaluating investments, present equivalent cost comparisons, incremental approach, rate of return comparisons, benefit/cost comparisons, MARR, replacement problems, always ignore the past, break-even analysis, income tax and depreciation, and inflation. (F, Sp)

COURSES IN ENGLISH (ENG)

3153 Technical Writing. Prerequisite: 1213 and Engineering or hard science majors only. For students of the pure and applied sciences. Focuses on the forms of report writing most frequently encountered in research and industry. (F, Sp, Su)

COURSES IN GEOLOGY (GEOLOG)

1114 Physical Geology for Science and Engineering Majors. Prerequisite: equivalent knowledge of high school chemistry, algebra and trigonometry. Laboratory included. Plate tectonics, the makeup of continents and mountain building; Heat, magnetism, gravity, rock deformation, earthquakes and the earth’s interior. Surface processes including weathering, erosion, transport and deposition; ground water, groundwater and surface water; Sedimentary rocks, Minerals and rocks. Application of geology to land-use, groundwater, mineral and fossil fuel exploration. Laboratory (F, Sp) [III-LAB]

COURSES IN MATHEMATICS (MATH)

1914 Differential and Integral Calculus I. Prerequisite: satisfactory score on the placement test or, for incoming freshmen directly from high school, satisfactory score on the ACT/SAT. Duplicates three hours of 2423 and two hours of 2433. Fundamental principles of calculus and elements of differentiation to optimization and curve sketching, integration, the fundamental theorem of calculus, the substitution rule, applications of integration to computation of areas. (Sp, Su) [I-II]

2924 Differential and Integral Calculus II. Prerequisite: 1914 with a grade of C or better. Duplicates three hours of 2423 and two hours of 2433. Fundamental principles of calculus and elements of differentiation to optimization and curve sketching, integration, the fundamental theorem of calculus, the substitution rule, applications of integration to computation of areas. (Sp, Su) [I-II]

2934 Differential and Integral Calculus III. Prerequisite: 2924 with a grade of C or better. Includes topics in one and two variables, partial differentiation and multiple integration, line and surface integrals, Green-Stokes-Gauss theorems. (F, Sp)

G3113 Introduction to Ordinary Differential Equations. Prerequisites: MATH 2423 or MATH 2924. Duplicates two hours of 3413. First order ordinary differential equations, linear differential equations with constant coefficients, second order linear differential equations with constant coefficients, homogeneous equations, non-homogeneous equations, Laplace transforms, multiple integration, line and surface integrals, Green-Stokes-Gauss theorems. (F, Sp)

COURSES IN PHYSICS (PHYS)

2514 General Physics for Engineering and Science Majors. Prerequisites: Mathematics 1823 or Mathematics 1914 with a grade of C or better. Not open to students with credit in 1205. Vectors, kinematics and dynamics of particles, work and energy systems of particles, rotational kinematics and dynamics, oscillations, gravitation, fluid mechanics, waves. (F, Sp, Su) [III-N]

2524 General Physics for Engineering and Science Majors. Prerequisites: 2514 and Mathematics 2423 or 2924 with a grade of C or better. Not open to students with credit in 1215. Temperature, heat, thermodynamics, electricity, magnetism, optics. (F, Sp, Su)