Civil Engineering

College of Engineering and Mines
Department of Civil and Environmental Engineering
(907) 474-7241
www.uaf.edu/engineer/cee.htm

B.S. Degree

Minimum Requirements for Degree: 134 credits

Civil engineers plan, design and supervise the construction of public and private structures such as space launching facilities, offshore structures, bridges, buildings, tunnels, highways, transit systems, dams, airports, irrigation projects, and water treatment and distribution facilities.

Civil engineers use sophisticated technology and employ computer-aided engineering during design, construction, project scheduling and cost control. They are creative problem solvers involved in community development and the challenges of pollution, deteriorating infrastructure, traffic congestion, energy needs, floods, earthquakes and urban planning.

The civil engineering program at UAF began in 1922 and graduated its first major in 1931. Many of the more than 800 men and women who have graduated since then work in a wide range of positions all over Alaska. More than 60 percent of Alaska's professional engineers practice in civil engineering. The program at UAF has been accredited since 1940 and currently by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology. All engineering programs in the department give special attention to problems of northern regions.

Graduate students may enter one of two programs: the master of civil engineering is for students whose goal is broad professional practice, and the master of science degree is for those who favor an emphasis on research and specialized study.

In addition to general civil engineering courses, the department offers specialties in transportation, geotechnical, structures, water resources, hydrology and environmental studies. These courses emphasize principles of analysis, planning and engineering design in northern regions.

A master's degree program can include courses in environmental engineering, engineering management and other areas. An advanced degree in environmental engineering administered within the civil engineering department is available.

Major—B.S. Degree

1. Complete the general university requirements. (See page 107. As part of the core curriculum requirements, complete: MATH 200X*, CHEM 105X* and CHEM 106X*.)
2. Complete the B.S. degree requirements. (See page 114. As part of the B.S. degree requirements, complete: MATH 201X*; PHYS 211X* and PHYS 212X*.)
3. Complete the following program (major) requirements:*

CE 112—Elementary Surveying	3
CE 326W—Introduction to Geotechnical Engineering	4
CE 334—Properties of Materials	3
CE 344—Water Resources Engineering	3
CE 400—FE Exam	0
CE 402—Introduction to Transportation Engineering	3
CE 431—Structural Engineering I	3
CE 432—Structural Engineering II	3
CE 438W,O—Design of Engineered Systems	3
CE 441—Environmental Engineering	4
CE 490—Civil Engineering Seminar	.5
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DRT 170—Beginning AutoCad	3
ES 101—Introduction to Engineering	3
ES 201—Computer Techniques	3
ES 209—Statics	3
ES 210—Dynamics	3
ES 301—Engineering Analysis	3
ES 331—Mechanics of Materials	3
ES 341—Fluid Mechanics	4
ESM 450W—Economic Analysis and Operations	3
GE 261—General Geology for Engineers	3
MATH 202X—Calculus	4
MATH 302—Differential Equations	3
Technical electives**	15

4. Minimum credits required 134

** Student must earn a C grade or better in each course.*

*** Technical electives must include 9 credits of CE, ENVE or ESM courses, 3 credits of either ES 307 or ES 346, and 3 credits of approved technical courses. Students should consult their advisor. Four out of five electives must be taken from approved CE electives or ENVE elective graduate courses. Only 1 graduate-level course may count toward graduation as a technical elective and the student must be within 30 credits of graduation and have at least a 3.0 GPA to enroll. Students must earn a C grade or better in each technical elective course.*

Note: The ability to utilize computers for normal class work is expected in all engineering classes above the 100-level.

Note: Page numbers refer to the UAF 2005-2006 academic catalog, which can be viewed online at www.uaf.edu/catalog/.

Baccalaureate Core Requirements

All degrees (e.g. B.A., B.S., etc.) require additional courses. Refer to specific degree and program requirements.

COMMUNICATION (9)

Complete the following:
ENGL 111X .....(3) _____
ENGL 190H may be substituted.

Complete one of the following:
ENGL 211X **OR** ENGL 213X .....(3) _____

Complete one of the following:
COMM 131X **OR** COMM 141X.....(3) _____

PERSPECTIVES ON THE HUMAN CONDITION (18)

Complete all of the following four courses:
ANTH 100X/SOC 100X.....(3) _____
ECON 100X **OR** PS 100X .....(3) _____
HIST 100X.....(3) _____
ENGL/FL 200X .....(3) _____

Complete one of the following three courses:
ART/MUS/THR 200X, HUM 201X **OR** ANS 202X..... (3) _____

Complete one of the following six courses:
BA 323X, COMM 300X, JUST 300X, NRM 303X,
PS 300X **OR** PHIL 322X.....(3) _____
OR complete 12 credits from the above courses **PLUS**
- two semester-length courses in a single Alaska Native language or other non-English language **OR**
- three semester-length courses (9 credits) in American Sign Language taken at the university level.

MATHEMATICS (3)

Complete one of the following:
MATH 107X, MATH 161X **OR** MATH 103X.....(3-4) _____
** No credit may be earned for more than one of MATH 107X or 161X.*

OR complete one of the following:*
MATH 200X, MATH 201X, MATH 202X,
MATH 262X **OR** MATH 272X.....(4) _____
**Or any math course having one of these as a prerequisite*

NATURAL SCIENCES (8)

Complete any two (4-credit) courses:
ATM 101X .....(4) _____
BIOL 100X.....(4) _____
BIOL 103X.....(4) _____
BIOL 104X.....(4) _____
BIOL 105X.....(4) _____
BIOL 106X.....(4) _____
BIOL 111X.....(4) _____
BIOL 112X.....(4) _____
CHEM 100X .....(4) _____
CHEM 103X .....(4) _____
CHEM 104X .....(4) _____
CHEM 105X .....(4) _____
CHEM 106X .....(4) _____
GEOG 205X .....(4) _____
GEOS 100X .....(4) _____
GEOS 101X .....(4) _____
GEOS 112X .....(4) _____
GEOS 120X .....(4) _____
GEOS 125X .....(4) _____
MSL 111X.....(4) _____
PHYS 102X.....(4) _____
PHYS 103X.....(4) _____
PHYS 104X.....(4) _____
PHYS 115X.....(4) _____
PHYS 116X.....(4) _____
PHYS 175X.....(4) _____
PHYS 211X.....(4) _____
PHYS 212X.....(4) _____
PHYS 213X.....(4) _____

LIBRARY AND INFORMATION RESEARCH (0–1)
Successful completion of library skills competency test **OR**
LS 100X or 101X prior to junior standing .....(0–1) _____

UPPER-DIVISION WRITING AND ORAL COMMUNICATION (0)

Complete the following:
Two writing intensive courses designated (W) .....(0) _____
One oral communication intensive course designated (O) .....(0) _____
OR two oral communication intensive courses designated (O/2), at the upper-division level (see degree and/or major requirements) .....(0) _____

TOTAL CREDITS REQUIRED.....38–39

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