

Civil Engineering



College of Science, Engineering and Mathematics
Department of Civil and Environmental Engineering
(907) 474-7241

www.uaf.edu/civileng/cee.html

Degrees: B.S., M.C.E., M.S.

Minimum Requirements for Degrees: B.S.: 135 credits;

M.C.E. or M.S.: 30 credits

Civil engineers plan, design and supervise the construction of facilities essential to modern life in both the public and private sectors. These facilities vary widely in nature, size and scope: space launching facilities, offshore structures, bridges, buildings, tunnels, highways, transit systems, dams, airports, irrigation projects, treatment and distribution facilities for water and collection and treatment facilities for wastewater.

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

The civil engineering program at UAF began in 1922, had its first graduate in 1931 and since has graduated more than 800 men and women. Many of these graduates work in Alaska's cities, towns and villages in a wide range of responsible positions. More than 60 percent of Alaska's professional engineers practice in civil engineering. Civil engineers continue to provide a significant contribution to society. The UAF civil engineering program has been accredited since 1940 and presently 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 those whose goal is broad professional practice. Those whose interests or background favor a specialized program, with emphasis on research and/or advanced specialized study, will ordinarily select the master of science degree.

In addition to general civil engineering courses, specialties are available 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.

UNDERGRADUATE PROGRAM

MAJOR

Civil Engineering—B.S. Degree

1. Complete the general university requirements (page 28). (As part of the core curriculum requirements, complete: MATH 200X, CHEM 105X and CHEM 106X.)
2. Complete the B.S. degree requirements (page 34). (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
ES 101—Introduction to Engineering	2
ES 201—Computer Techniques	3
ES 209—Statics	3
ES 210—Dynamics	3
ES 301—Engineering Analysis	3
ES 307—Elements of Electrical Engineering	3
ES 331—Mechanics of Materials	3
ES 341—Fluid Mechanics	4
ES 346—Basic Thermodynamics	3
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

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

** Technical electives must include 12 credits of CE or ENVE courses and 3 credits of approved technical courses. Students should consult their advisor. Four out of 5 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.



University of Alaska Fairbanks

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The University of Alaska Fairbanks is accredited by the Commission on Colleges and Universities of the Northwest Association of Schools and Colleges. UAF is an affirmative action/equal opportunity employer and educational institution. 4/03



GRADUATE PROGRAM

Civil Engineering—M.C.E. Degree

- 1. Complete the following admission requirements:
 - a. Complete a bachelor's degree in civil engineering.
 - b. International students must complete the TOEFL with a score of 575 or better.
- 2. Complete the general university requirements (page 43).
- 3. Complete the master's degree requirements (page 46).
- 4. Complete a project 3-6
- 5. Minimum credits required 30

Note: M.C.E. candidates will have passed a State Engineer-in-Training Examination prior to the awarding of the degree.

Civil Engineering—M.S. Degree

- 1. Complete the following admission requirements:
 - a. Complete a bachelor's degree in civil engineering.
 - b. International students must complete the TOEFL with a score of 575 or better.
- 2. Complete the general university requirements (page 43).
- 3. Complete the master's degree requirements (page 46).
- 4. Complete a thesis 6-12
- 5. Minimum credits required 30

See Arctic Engineering.
 See Engineering for Ph.D. program.
 See Engineering Management.
 See Science Management.
 See Environmental Engineering and Environmental Quality Science.

