

**Bachelor of Environmental Engineering (BEnvE)  
Proposed 22 November 2013**

**Freshman Year***Fall Semester (17 cr)*

Math 1371 - CSE Calculus I (4 cr)  
Phys 1301W - Introductory Physics for  
Science and Engineering I (4 cr)  
Chem 1061 - Chem Prin I (3 cr)  
Chem 1065 - Chem Prin I Lab (1 cr)  
Freshman writing requirement (4 cr)  
CSE 1001 - 1<sup>st</sup> year experience (1 cr)

*Spring Semester (16 cr)*

Chem 1062 - Chem Prin II (3 cr)  
Chem 1066 - Chem Prin II Lab (1 cr)  
Math 1372 - CSE Calculus II (4 cr)  
Phys 1302W - Introductory Physics for  
Science and Engineering II (4 cr)  
Bio 1001 or 1009 with lab (4 cr)

**Sophomore Year***Fall Semester (16 cr)*

Math 2374 - CSE Multivariable Calculus  
with Vector Analysis (4 cr)  
Chem 2311 Organic Chemistry I (3 cr)  
AEM 2021 Statics (3 cr)  
CE 3501 - Environmental Engineering (3  
cr)  
Liberal education course (3 cr)

*Spring Semester (16 cr)*

Math 2373 - CSE Linear Algebra and  
Differential Equations (4 cr)  
Chem 4501 Intro to Thermodynamics,  
Kinetics, and Stat Mechanics (3 cr)  
AEM 3031 Deform. Body Mechanics (3 cr)  
CE 3101 Computer Appl I (3 cr)  
Liberal education course (3 cr)

**Junior Year***Fall Semester (16 cr)*

CE 3102 - Uncertainty and Decision  
Analysis (3 cr)  
CE 3502 - Fluid Mechanics (4 cr)  
ESCI 1101 - Introductory Geology (3 cr)  
CE 3402W - CE Materials (3 cr)  
CE 3542 - Environmental Engineering  
Laboratory (3 cr)\*

*Spring Semester (15 cr)*

CE 3301 - Soil Mechanics I (3 cr)  
CE 4502 - Water/Wastewater Treatment  
(3 cr)  
Selected Elective (3 cr)  
Selected Elective (3 cr)  
Liberal Education Course (3 cr)

**Senior Year***Fall Semester (16 cr)*

CE 4501 - Hydrologic Design (4 cr)  
Selected Elective (3 cr)  
Technical Elective (6 cr)  
Liberal Education Course (3 cr)

*Spring Semester (13 cr)*

CE 4102W - Capstone Design (4 cr)  
Selected Elective (3 cr)  
Technical Elective (6 cr)

\*new course

2011

odd

**Selected Electives (four total, two in each category):**

**1. Chemistry/Ecology/Microbiology**

- CE 4561: *Solid and Hazardous Wastes*
- CE 4562: *Remediation Technologies*
- CE 5541: *Environmental Water Chemistry*
- CE 5551: *Environmental Microbiology*
- BBE 4533: *Waste Management*
- BBE 4608: *Industrial and Environmental Microbiology*
- ESCI 3303W: *Geochemical principles*
- ESCI 4801: *Geomicrobiology*
- MICB 3301: *Biology of Microorganisms*
- BIOL 3408W: *Ecology*
- LAAS 5311: *Soil Chemistry and Mineralogy*

**2. Water/ Atmospheric Sciences/Sustainability**

- CE 4351: *Groundwater Mechanics*
- CE 4512: *Open Channel Hydraulics*
- CE 5511: *Urban Hydrology and Land Development*
- CE 5543: *Introductory Environmental Fluid Mechanics*
- CE 5561: *Air quality engineering*
- CE 5571: *Design for Sustainable Development: Innovate*
- ESCI 4702: *General Hydrogeology*
- ESCI 3402: *Science and Politics of Global Warming*
- CE 3425: *Atmospheric pollution: From smog to climate change*
- CE 4523: *Ecological Engineering Design*

**Title:** Environmental Engineering Laboratory, 3 credits

**Course number:** 3542

**Goal:** To conduct laboratory experiments and critically analyze and interpret data in more than one major environmental engineering focus area (e.g., air, water, land, environmental health), as required by the Engineering Accreditation Commission of ABET.

**Format:** 1.5 hours per week of lecture, 3 hours per week of laboratory. Lecture will consist of the theory behind the experiments as well as the analyses performed.

**Textbook:** No textbook required

### Tentative List of Topics

Week	Lectures	Lab	Concepts
1	Intro	None	
2	pH, activity, and the carbonate system	Measuring proton activity & alkalinity	Calibration curve, ionic strength/activity, titration
3	DLVO theory	COD, DOC, turbidity measurements	Coagulation/flocculation
4	Solubility	Ca <sup>2+</sup> measurement via titration and atomic absorption	Softening
5	Photochemistry	Photolysis of ranitidine and cimetidine (HPLC)	Role of light in chemical processing, direct and indirect photolysis
6		Microbiology of natural water (adapt CSE 1101 lab)	Plate counts
7		BOD	Strength of waste
8		Biodegradation of phenol with cultures derived from pond water and soil near a parking lot (UV or HPLC measurement)	
9		Bio lab #4	
10	Non-steady state reactor dynamics	Reactor kinetics (KMnO <sub>4</sub> and NaNO <sub>3</sub> tracers)-UV/vis measurement	
11	Diffusion	Proton and Cl <sup>-</sup> diffusion through membranes (diffusion cell experiments)	Ion selective electrodes
12	Mass transfer	Effect of stirring/flow rate and particle size on dissolution of benzoic acid (can measure by UV/Vis)	
13	Sensing tools	DO, pH, turbidity measurements in real time in outdoor stream lab	Field measurements
14	Indoor and outdoor air pollution	Particulate and gas composition measurements with hand held devices (adapt from CSE 1101)	Field measurements
15		none	



# UNIVERSITY OF MINNESOTA

*Twin Cities Campus*

*Department of Civil Engineering  
College of Science and Engineering*

*122 Civil Engineering Building  
500 Pillsbury Drive S.E.  
Minneapolis, MN 55455  
Phone: 612-625-5522  
Fax: 612-626-7750  
Website: [www.ce.umn.edu/](http://www.ce.umn.edu/)*

October 7, 2013

To: Steven L. Crouch, Professor and Dean, College of Science & Engineering

From: Joseph F. Labuz, MSES/Kersten Professor and Head

Re: Proposal for Bachelor of Environmental Engineering (BEnvE) Program

The faculty of the Department of Civil Engineering request approval of a new degree program: Bachelor of Environmental Engineering (BEnvE). The proposed four year plan is attached, with only one new course added; all other required courses in the program, as well as technical electives, are currently taught in the College of Science & Engineering (or other colleges).

Environmental engineering has its roots in the field of sanitary engineering. The design of water and wastewater treatment systems was a critical part of infrastructure, and thus sanitary engineering was associated with civil engineering. During the dawning of the “environmental era” in the 1970s and 1980s, the field of sanitary engineering evolved into environmental engineering, and the problems tackled by faculty in these programs greatly expanded to include hazardous waste treatment, groundwater remediation, and a host of other issues. Environmental engineering programs now exist in departments of civil engineering nationwide. For example, in the Big Ten, Michigan, Northwestern, Ohio State, and Penn State have environmental engineering programs accredited by the Engineering Accreditation Commission of ABET, as do Georgia Tech and MIT.

The following criteria for environmental engineering programs are curriculum requirements specified by the Engineering Accreditation Commission of ABET (Lead Society, American Academy of Environmental Engineers):

The program must prepare graduates to be proficient in mathematics through differential equations, probability and statistics, calculus-based physics, general chemistry; an earth science, *e.g.* geology, meteorology, soil science, relevant to the program of study; a biological science, *e.g.* microbiology, aquatic biology, toxicology, relevant to the program of study; fluid mechanics relevant to the program of study; introductory level knowledge of environmental issues associated with air, land, and water systems and associated environmental health impacts; conducting laboratory experiments and critically analyzing and interpreting data in more than one major environmental engineering focus area, *e.g.* air, water, land, environmental health; performing engineering design by means of design experiences integrated throughout the professional component of the curriculum; to be proficient in advanced principles and practice relevant to the program objectives; understanding of concepts of professional practice and the roles and responsibilities of public institutions and private organizations pertaining to environmental engineering.

The curriculum requirements, and how these will be satisfied, follow.

1. Proficient in mathematics through differential equations. This is achieved by the math-track already used for CSE.
2. Probability and statistics. This is achieved by CE 3102.
3. Calculus-based physics. Phys 1301 and Phys 1302.
4. General chemistry. Chem 1061 and Chem 1062, with labs.
5. An earth science. ESCI 1101 (no lab) or ESCI 1001 (with lab).
6. A biological science. The University requires a biological science with laboratory as part of the liberal education requirements, but Biol 1001 or Biol 1009 is required.
7. Fluid mechanics relevant to the program of study: CE 3502 Fluid Mechanics.
8. Introductory level knowledge of environmental issues associated with air, land, and water systems and associated environmental health impacts: CE 3501 Environmental Engineering.
9. Conducting laboratory experiments and critically analyzing and interpreting data in more than one major environmental engineering focus area, *e.g.* air, water, land, environmental health. This will be a newly developed course offered by the department.
10. To be proficient in advanced principles and practice relevant to the program objectives. Satisfied by CE 4501 Hydrologic Design, CE 4502 Water and Wastewater Treatment, and CE 4102 Capstone Design.
11. Understanding of concepts of professional practice and the roles and responsibilities of public institutions and private organizations pertaining to environmental engineering: CE 4102 Capstone Design.

## Program Criteria for Environmental and Similarly Named Engineering Programs

Lead Society: American Academy of Environmental Engineers and Scientists

Cooperating Societies: American Institute of Chemical Engineers,

American Society of Agricultural and Biological Engineers,

American Society of Civil Engineers,

American Society of Heating, Refrigerating and Air-Conditioning Engineers,

American Society of Mechanical Engineers,

SAE International,

Society for Mining, Metallurgy, and Exploration

These program criteria apply to engineering programs that include "environmental", "sanitary," or similar modifiers in their titles.

### 1. Curriculum

The curriculum must prepare graduates to apply knowledge of mathematics through differential equations, probability and statistics, calculus-based physics, chemistry (including stoichiometry, equilibrium, and kinetics), an earth science, a biological science, fluid mechanics. The curriculum must prepare graduates to formulate material and energy balances, and analyze the fate and transport of substances in and between air, water, and soil phases; conduct laboratory experiments and analyze and interpret the resulting data in more than one major environmental engineering focus area, (e.g., air, water, land, environmental health); design environmental engineering systems that include considerations of risk, uncertainty, sustainability, life-cycle principles, and environmental impacts; and apply advanced principles and practice relevant to the program objectives. The curriculum must prepare graduates to understand concepts of professional practice, project management, and the roles and responsibilities of public institutions and private organizations pertaining to environmental policy and regulations.

### 2. Faculty

The program must demonstrate that a majority of those faculty teaching courses that are primarily design in content are qualified to teach the subject matter by virtue of professional licensure, board certification in environmental engineering, or by education and equivalent design experience.

**Requirements:**

1. Knowledge of mathematics through differential equations: MATH 1371, 1372, 2374, 2373
2. Probability and statistics: CE 3102
3. Calculus-based physics: PHYS 1301W, 1302W
4. Chemistry (including stoichiometry, equilibrium, and kinetics): CHEM 1061, 1065, 1062, 1066
5. An earth science: ESCI 1101
6. A biological science: BIO 1001 or 1009
7. fluid mechanics: CE 3502
8. The curriculum must prepare graduates to formulate material and energy balances, and analyze the fate and transport of substances in and between air, water, and soil phases CE 3501, CE 4502
9. Conduct laboratory experiments and analyze and interpret the resulting data in more than one major environmental engineering focus area, (e.g., air, water, land, environmental health): CE 3542\*
10. Design environmental engineering systems that include considerations of risk, uncertainty, sustainability, life-cycle principles, and environmental impacts; CE 4501, CE 4502, CE 4102W
11. Apply advanced principles and practice relevant to the program objectives. The curriculum must prepare graduates to understand concepts of professional practice, project management, and the roles and responsibilities of public institutions and private organizations pertaining to environmental policy and regulations. CE 3501, CE 4502, CE 4102W



# UNIVERSITY OF MINNESOTA

*Twin Cities Campus*

*Department of Civil Engineering  
College of Science and Engineering*

*122 Civil Engineering Building  
500 Pillsbury Drive S.E.  
Minneapolis, MN 55455*

*Phone: 612-625-5522  
Fax: 612-626-7750  
Website: [www.ce.umn.edu/](http://www.ce.umn.edu/)*

July 15, 2013

Steven L. Crouch, Professor & Dean  
College of Science & Engineering  
105 Walter Library

Dear Steve,

I am asking you to support and obtain approval for a change in name from Department of Civil Engineering to *Department of Civil, Environmental, and Geo- Engineering* effective July 1, 2014. The main reason for this request is that the three identifiers – Civil, Environmental, and Geo- Engineering – will be associated with degree programs in the department.

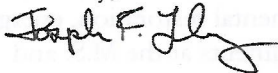
The department currently is home to two degree programs: Bachelor of Civil Engineering and Bachelor of Geoengineering. In addition to the name change, we plan to seek approval to offer a Bachelor of Environmental Engineering degree program starting Fall 2014. While several departments offer courses and conduct research on the environment (*e.g.* Mechanical Engineering, Chemical Engineering & Materials Science, Bioproducts & Biosystems Engineering, Chemistry, Earth Sciences), an ABET-accredited environmental engineering degree will provide undergraduate students an opportunity that does not now exist at the University of Minnesota (UMN).

This request was preceded by written proposals for the name change, discussion at faculty meetings, two separate votes (one for “environmental” and one for “geo-”) with approval by more than two-thirds of the faculty, support from my Advisory Board and the Minnesota Section of the American Society of Civil Engineers (ASCE), meetings with university colleagues, students, and alumni, and various professional organizations. Note that the word “environmental” is now included in the name of many civil engineering departments nationwide. For example, Illinois, Iowa, Michigan, Michigan State, Northwestern, Penn State, and Wisconsin have a Department of Civil and Environmental Engineering. With the addition of “geo-” UMN will be unique.

In support of this request, the following items are attached.

1. Faculty proposal for the name change
2. Minutes of meetings with colleagues, students, alumni, and professional organizations
3. Letters/e-mail message from Profs. Donna Whitney (Earth Sciences), Uwe Kortshagen (Mechanical Engineering), and Lewis Gilbert (Institute on the Environment)
4. Letters from Glenn Schreiner, chair of my Advisory Board, and Seth Sychala, President of ASCE, MN Section

Sincerely,



Joseph F. Labuz, MSES/Kersten Professor & Head

# UNIVERSITY OF MINNESOTA

Twin Cities Campus

Department of Civil Engineering  
College of Science and Engineering

122 Civil Engineering Building  
500 Pillsbury Drive S.E.  
Minneapolis, MN 55455

Phone: 612-625-5522

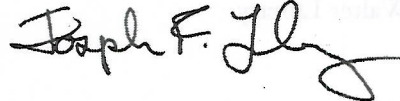
Fax: 612-626-7750

Website: [www.ce.umn.edu/](http://www.ce.umn.edu/)

July 15, 2013

To: Steven L. Crouch, Professor and Dean, College of Science & Engineering

From: Joseph F. Labuz, MSES/Kersten Professor & Head



Re: Attachment 1 – Proposal for Name Change

The faculty of the Department of Civil Engineering request a name change to *Department of Civil, Environmental, and Geo- Engineering*. The department currently is home to two degree programs: Bachelor of Civil Engineering (BCE) and Bachelor of Geoengineering (BGeoE). In addition to the name change, we plan to seek approval to offer a Bachelor of Environmental Engineering (BEnvE) degree program. Thus, the three identifiers – *Civil, Environmental, and Geo- Engineering* – will be associated with degree programs in the department. Note that the name would be unique in the U.S., although Karlsruhe Institute of Technology has the Department of Civil Engineering, Geo and Environmental Sciences (<http://www.bgu.kit.edu/english/>) and the Technical University of Munich has Faculty of Civil, Geo, and Environmental Engineering (<http://www.bgu.tum.de/en/home/>). A summary of the proposal for the name change follows.

## Environmental Engineering

Environmental engineering has its roots in the field of sanitary engineering. The design of water and wastewater treatment systems was a critical part of infrastructure, and thus sanitary engineering was associated with civil engineering. During the dawning of the “environmental era” in the 1970s and 1980s, the field of sanitary engineering evolved into environmental engineering, and the problems tackled by faculty in these programs greatly expanded to include hazardous waste treatment, groundwater remediation, and a host of other issues. “Environmental” is now listed separately in the name of civil engineering departments nationwide. For example, in the Big Ten, Illinois, Iowa, Michigan, Michigan State, Northwestern, Penn State, and Wisconsin have a Department of Civil and Environmental Engineering, as does Georgia Tech, MIT, Stanford, California-Berkeley, and Virginia Tech.

Environmental activities occur throughout the department, ranging from the design of sustainable or “green” built environments to the development of appropriate technologies for the developing world. Including “environmental” in the departmental name highlights current interactions in the department and future research directions, not only in environmental, water resources, and geoengineering, but in the department as a whole.

There is substantial funding in the department focused on environmental restoration, energy, and water/air quality. While enrollment numbers fluctuate over time, enrollments at the M.S. and Ph.D. levels emphasize the impact of “environmental” research in the department. In Fall 2012,

48% of the M.S. students in the department were in the environmental (29%) or water resources (19%) areas. Similarly, 46% of the Ph.D. students (17% enviro, 29% water) were in these areas. Note that the department has an M.S. degree program titled Environmental Restoration Science and Engineering. We also have an M.S. degree that is specifically environmental/water resources-focused: the Peace Corps Masters International.

The addition of the undergraduate degree program will come with specific efforts to offer additional classes. An example is a 4xxx level class in Environmental Restoration, Analysis, and Modeling course, which would cover topics ranging from stream restoration to groundwater remediation. Environmental restoration is a theme that ties the water resources and environmental groups together, and thus a class in this area is timely and relevant. This class would incorporate sensing technologies and use the Outdoor Stream Lab at St. Anthony Falls as a hands-on teaching tool/laboratory.

### Geoengineering

The history of geoengineering at the University of Minnesota dates back to 1888, when the School of Mines was established. In 1935, the School of Mines and Metallurgy offered bachelor degrees in geological, metallurgical, mining, and petroleum engineering. Our geoengineering program has been ABET-accredited since 1950, though at times under geological engineering. The geoengineering program has initiated and promoted fundamental research and its applications to civil, mining, and petroleum engineering problems related to the earth's surface and subsurface. Contributions include (a) the servo-controlled load frame for determining post-peak behavior of geomaterials; (b) the displacement discontinuity method for predicting the stability of underground excavations; (c) the distinct element method for modeling the behavior of blocky rock masses and granular material; (d) the analytical element method for describing local and regional flow through porous media; and (e) the hydraulic fracturing technique for measuring *in-situ* stress.

Geoengineering is the application of geosciences, where mechanics, mathematics, chemistry, and geology are used to understand and shape the design of natural and built infrastructure. For example, geoengineers work on underground transportation systems, surface and subsurface mines, supply of drinking water from groundwater, isolation of nuclear and hazardous wastes, stimulation of hydrocarbon reservoirs, and deep wells for exploration and production of oil and gas.

The department recently revised the geoengineering program to recognize the importance of environmental and water/fluid resources issues in dealing with the analysis and sustainable design of infrastructure composed of, or in, rock and soil, as well as the development and responsible production of surface and subsurface mineral resources. Other geoengineering problems at the intersection of civil engineering, environmental engineering, and earth sciences have been addressed from a multidisciplinary approach (*e.g.* deltaic rehabilitation through the National Center of Earth-Surface Dynamics). Building on these links has the potential of reinforcing and creating new activities with societal and industrial needs, such as energy sustainability and related issues where civil and environmental engineering intersect with earth sciences.

# UNIVERSITY OF MINNESOTA

Twin Cities Campus

Department of Civil Engineering  
College of Science and Engineering

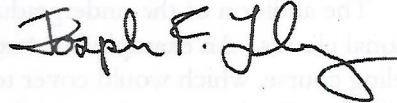
122 Civil Engineering Building  
500 Pillsbury Drive S.E.  
Minneapolis, MN 55455

Phone: 612-625-5522  
Fax: 612-626-7750  
Website: [www.ce.umn.edu/](http://www.ce.umn.edu/)

July 15, 2013

To: Steven L. Crouch, Professor and Dean, College of Science & Engineering

From: Joseph F. Labuz, MSES/Kersten Professor & Head



Re: Attachment 2 – Minutes from Meetings on Name Change

The faculty of the Department of Civil Engineering enthusiastically support the name change to *Department of Civil, Environmental, and Geo-Engineering*. The process consisted of submission of written proposals, discussion at two faculty meetings, and two separate votes (one for “environmental” and one for “geo-”) with approval by more than two-thirds of the faculty. This was followed by discussion with my Advisory Board and the Minnesota Section of the American Society of Civil Engineers (ASCE), meetings with university colleagues, students, and alumni, and various professional organizations. The minutes from the discussions and meetings follow.

## Summary of Meetings

November 7, 2012: Proposal submitted to change department name to include “environmental”  
The main reasons are that about half of the faculty conduct research in environmental-related areas and most courses already exist for an ABET-accredited environmental engineering program.

December 14, 2012: Faculty meeting devoted to discussion of name change  
There was unanimous consensus to have a 2/3 vote to change the name, as there should be strong support from faculty. A majority of civil engineering programs in the country include environmental in the title, with the rest split between just having civil engineering or civil with some other name. Environmental activities occur throughout the department, ranging from the design of sustainable (built) environments to the development of technologies. There will be a cost (e.g. letterhead) associated with a name change, but the amount has not been estimated.

January 8, 2013: Proposal submitted to change department name to also include “geo-”  
The main reasons are that we have an existing degree program called Geoengineering and it identifies a strength of the department.

February 1, 2013: Vote on the department name change to include “environmental”  
The 29 eligible voters were tenured and tenure-track faculty. Prof. Steve Crouch, dean of the college and a member of the faculty, was not asked to cast a ballot. The vote was 25 for and 3 against; one person did not vote.

March 8, 2013: Faculty meeting devoted to discussion of name change to also include “geo-”

We are distinct in that our geoengineering program is so well known; it is not common so it should be noted in the department name. There is local interest in the geo- field and there is no mining major offered on campus. There is an overlap in the meanings of the names to be included in the title, but that can be seen as a positive aspect, as overlaps are necessary for the degree programs to exist in the same department. There are a number of other departments that have three names in their title, such as civil, environmental, and architectural.

March 8, 2013: Vote on the department name to also include “geo-”  
The 29 eligible voters were tenured and tenure-track faculty. Prof. Steve Crouch, dean of the college and a member of the faculty, was not asked to cast a ballot. The vote was 20 for and 8 against; one person did not vote.

March 25, 2013: Discussed name change with Prof. Uwe Kortshagen, Head, Mechanical Eng (ME)  
Labuz presented the case for the name change and the development of an ABET-accredited, Bachelor of Environmental Engineering (BEnvE) program, which will be aligned with strengths of the department, namely water chemistry and water resources. Kortshagen was concerned that students would not be aware of opportunities for environmental type courses and research within a department such as mechanical engineering. Labuz noted that technical electives, and possibly required courses for BEnvE, could come from other departments such as ME.

April 9, 2013: Discussed name change with the Student Board from the department  
The student leaders from ASCE, SME, and Chi Epsilon are members of the Student Board. Labuz outlined the plan for the name change and the degree program. A few students remarked that they wished the BEnvE program existed now. One student was concerned with the length of the name. One student liked having “Geo-” in the title.

April 15, 2013: Discussed name change with Prof. Donna Whitney, Head, Earth Sciences (ESci)  
Labuz presented the case for the name change and the development of an ABET-accredited, Bachelor of Environmental Engineering (BEnvE) program. Whitney was supportive and noted that including “Geo-” in the title may help recruit students to the program. Geoengineering students take a significant number of courses in Earth Sciences, and many earn two degrees.

May 8, 2013: Discussed name change with Profs. Shri Ramaswamy (Head) and John Nieber, Bioproducts and Biosystems Engineering (BBE)  
Labuz presented the case for the name change and the development of an ABET-accredited, Bachelor of Environmental Engineering (BEnvE) program. Ramaswamy and Nieber were supportive of the name change, but they were concerned with the BEnvE program being affiliated with one department. Environmental issues are addressed in several departments across the University, and students may not find these other opportunities. They requested to participate in the design of the degree program. Labuz thanked them for the offer but declined at this point; he prefers to have a draft program developed by faculty in civil engineering and discussion to follow. Labuz noted that technical electives, and possibly required courses for BEnvE, could come from other departments, such as BBE. Labuz stressed the importance of “ownership” from one department in advising students and ensuring accreditation. An example is Geoengineering, which is housed in the Department of Civil Engineering and students take at least six courses in Earth

Sciences; the two departments work closely on course offerings, but students are advised through Civil Engineering. Labuz will contact Ramaswamy in Fall 2013 when a draft program is ready for discussion and input.

*Professional Organizations and Advisory Board*

March 13, 2013: Attended Minnesota Geotechnical Society (MGS) meeting; discussed name change with MGS members. With approximately 50 people in attendance, many alumni of the department, support for the name change was uniformly strong. Comments included the history of geoenvironmental engineering at the University of Minnesota, and finally it is being recognized in the name of the department.

April 5, 2013: Attended ASCE Executive Board Meeting; discussed the name change and received a unanimous vote of support. A few members of the Board were concerned that the other sub-disciplines of civil engineering, namely structures and transportation, are being left out. Labuz explained that structures and transportation remain critical areas in the department, and the renaming simply follows the degree programs that will be offered.

April 17, 2013: Discussed the name change with the Professional Advisory Board. Generally, the board was supportive. The comments follow.

In the state of Minnesota, there are two other degree programs in Civil Engineering, University of Minnesota – Duluth and Minnesota State – Mankato, and neither has an environmental engineering program. A simple way to inform students that environmental is part of the department is to include it in the department's name. Within the department, environmental includes water and waste water, soil remediation, stream restoration, wind energy and water energy, air pollution related to transportation. There are many departments within the college and at the University that deal with the environment. There is a strong group of faculty within the department that identifies themselves as environmental engineers, including faculty at the St. Anthony Falls Laboratory. One of the reasons to include Geo- in the title includes the fact that it would create a unique department name like no other in the U.S. The challenge with including Geo- in the title is that Engineering needs to be linked to all three areas, not just Geo-, which is why there is a hyphen by Geo. The name change process entails meeting with various organizations to garner support. Thought should be given as to how to incorporate public/private partnerships and how industry can assist in the curriculum by providing more real-world experiences. There is a core set of courses that all students will have to take no matter the program they are in within the department, but there are also specialized courses that students have to take dependent upon their degree program. When there is an ABET-accredited program, a related professional organization, such as the American Academy of Environmental Engineering, establish guidelines on what the curriculum should entail. ABET allows individual programs to identify unique features that are associated with their strengths. The timeline for launching the ABET-accredited environmental engineering program will be Fall 2014. As part of the accreditation process, an undergraduate lab will need to be developed.

April 17, 2013: Discussed the name change with the mentors from Capstone Design, approximately 15 engineers from the Twin Cities, many of them alumni of the department. The support for the name change was uniformly strong.

April 18, 2013: Attended lunch meeting with division directors (M. Barnes, T. Henkel, S. Mulvihill, J. Skallman, N. Thompson) of the Minnesota Department of Transportation, including Deputy Commissioner/Chief Engineer B. Arseneau. We discussed the name change, and all were supportive. The development of the BEnvE program received enthusiastic approval.

April 24, 2013: Attended ASCE Minnesota Section meeting; discussed name change with ASCE members. With approximately 60 people in attendance, many alumni of the department, support for the name change was strong, although a few alumni in attendance were concerned that two areas of civil engineering were being included in the name, and other areas were not. Labuz explained that the identifiers are associated with degree programs. A few current students expressed strong support for BEnvE, and one student noted the importance of degree programs being in the department name. She indicated that she wished she knew about Geoengineering.

May 1, 2013: Attended breakfast meeting of the CEOs of civil engineering firms of Minnesota (D. Connell, Barr; J. Carlson, Braun; D. Murphy, MBJ; B. Deitner, TKDA; R. Bray, WSB; J. Grabowski, Wenck; B. Bennett, LHB; B. DeWolf, Bolton Menk; R. Geerdes, SRF; S. Claasen, SEH; T. Swor, AET). The support for the name change was uniformly strong. Labuz explained department initiatives besides the name change. The new BEnvE program was applauded and one person noted that it is overdue. A sensing course for undergraduates was considered timely.

# UNIVERSITY OF MINNESOTA

---

*Twin Cities Campus*

*Department of Earth Sciences  
N.H. Winchell School of Earth Sciences  
College of Science and Engineering*

*108 Pillsbury Hall  
310 Pillsbury Drive SE  
Minneapolis, MN 55455-0231  
Phone: 612-624-1333  
Fax: 612-625-3819  
Email: [esci@umn.edu](mailto:esci@umn.edu)  
Website: [www.esci.umn.edu](http://www.esci.umn.edu)*

3 July 2013

Dear Joe,

Thank you for informing me of the proposed name change from Civil Engineering to Civil, Environmental, and Geo- Engineering. During our April 15, 2013 meeting, you explained very convincingly the need for the name change and described the strong support of your faculty for this change. Offering an environmental engineering degree (BEnvE) makes sense given the strong group at St Anthony Falls and their work on water use and sustainability; this will be an excellent complement to the civil and geo-engineering degrees offered by your department.

As you know, your geo-engineering students take many courses in our department, and we hope that this will continue. Although we removed "geo" from our department name two years ago, it is nice to see "geo-" recognized in your new department name, and I hope the greater visibility brings continued growth to the program. I support the name change.

Sincerely,



Donna L. Whitney  
Head, Earth Sciences





Joe Labuz <jlabuz@umn.edu>

---

## Letter of support

1 message

---

**Uwe Kortshagen** <korts001@umn.edu>

Mon, Jul 15, 2013 at 2:29 PM

To: Joe Labuz <jlabuz@umn.edu>

Dear Joe,

As you explained in our March 25 meeting, your department plans to change its name to Civil, Environmental, and Geo- Engineering and offer an ABET-accredited environmental engineering degree (BEnvE).

I understand that many departments of civil engineering include environmental engineering in their names (for example, Illinois, Michigan, Wisconsin) and that it may help your department in recruiting students who are interested in the environment. As you know, Mechanical Engineering offers a range of courses around environmental issues and performs research in particular in the area of environmental aerosols. Having this said, I have conferred with faculty in this area and they do not have a concern with the name change of your department. It is my hope that students enrolling in the BEnvE program will be made aware of course and research opportunities within Mechanical Engineering as well.

With that, I am happy to support the name change of your department and the introduction of an accredited environmental engineering degree.

Regards,

Uwe

-

**Uwe Kortshagen, Ph.D.**

Distinguished McKnight University Professor  
Head, Department of Mechanical Engineering

University of Minnesota  
111 Church Street SE  
Minneapolis, MN 55455, U.S.A.

phone: +1 (612) 626 2546

email: Kortshagen@umn.edu

Department: <http://www.me.umn.edu>

Research: <http://www.menet.umn.edu/~uk>

# UNIVERSITY OF MINNESOTA

*Institute on the Environment*

325 LES Building  
1954 Buford Avenue  
St. Paul, MN 55108  
612-626-9553

11 July 2013

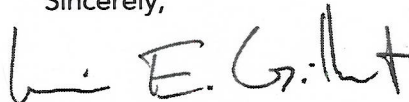
Joe Labuz  
Civil Engineering

Dear Joe:

Thank you for sharing your proposal for changing the name of your department to *Civil, Environmental and Geo-Engineering*. It is clear that the changes you propose are in line with the evolution of your department and with the needs our society both in terms of research and of work-force preparation.

The Institute on the Environment whole heartedly supports the change you propose. We look forward to working with you and members of your department as we develop solutions to today's most pressing challenges. In addition, we hope that interested students in your department will consider adding a sustainability minor to their credentials as they advance through their studies here at the U; Beth Mercer-Taylor can provide you or advisors in your department if students have questions along those lines.

Sincerely,



Lewis E. Gilbert  
Managing Director / COO

cc: J. Foley  
B. Mercer-Taylor

INSTITUTE ON THE  
**ENVIRONMENT**

UNIVERSITY OF MINNESOTA  
Driven to Discover™

July 03, 2013

Prof. Steven L. Crouch, Dean  
College of Science & Engineering  
105 Walter Library  
University of Minnesota

Dear Dean Crouch,

I am writing in support of a name change for the Department of Civil Engineering to "Department of Civil, Environmental, and Geo- Engineering." The Professional Advisory Board, for which I am chair, discussed the name change at our April 17, 2013 meeting with department head Prof. Joseph Labuz, and it was enthusiastically endorsed. We see the name change as an effective marketing tool that identifies the three degree programs in the department, and it is exciting to have a unique name that no other civil engineering department has.

It was surprising to hear that most other Big Ten schools have "environmental" listed separately in the name of civil engineering departments. When competing with Illinois, Iowa, Michigan, and Wisconsin for students, University of Minnesota is at a disadvantage because we currently do not have an ABET-accredited environmental engineering program. The advisory board supports the department name change along with the new ABET-accredited environmental engineering program to attract students to the University of Minnesota and to further research for sustainable solutions to our built environment.

The board is excited for the name change and the new opportunities for students. Please do not hesitate to contact me if you would like to discuss further.

Sincerely:



Glenn G. Schreiner, P.E.  
Chair, Civil Engineering Professional Advisory Board  
1978 Alumni  
(612) 677-1290  
schreiner@pbworld.com

**BOARD OF DIRECTORS**

**PRESIDENT**

Seth Spychala, P.E.  
Clark Engineering Corporation  
621 Lilac Drive North  
Minneapolis, MN 55422-4609  
(763) 595-3110  
sspychala@clark-eng.com

**PRESIDENT ELECT**

Steve Olson, P.E.  
Olson & Nesvold Engineers  
7825 Washington Avenue S., Suite 100  
Bloomington, MN 55439  
(952) 767-2664  
email: steve.olson@one-mn.com

**VICE PRESIDENT  
INFORMATION SERVICES**

Elizabeth Boulton, P.E.  
Target  
50 S 10<sup>th</sup> Street, Suite 400  
TP3-1020  
Minneapolis, MN 55403-2054  
(612) 761-1348  
email: elizabeth.boulton@target.com

**SECRETARY**

Joe Bentler, P.E.  
American Engineering Testing, Inc.  
550 Cleveland Avenue North  
St. Paul, MN 55114  
(651) 603-6616  
email: jrbentler@amengtest.com

**TREASURER**

Jim Hall, P.E.  
Short Elliott Hendrickson Inc.  
3535 Vadnais Center Drive  
St. Paul, MN 55110  
(651) 765-2951  
email: jhall@sehinc.com

**DIRECTOR  
TECHNICAL SERVICES**

Jason Staebell, P.E.  
Hennepin County Public Works  
Transportation Department  
1600 Prairie Drive  
Medina, MN 55340  
email: Jason.staebell@co.hennepin.mn.us

**DIRECTOR  
PROFESSIONAL SERVICES**

Bruce Holdhusen, P.E.  
MnDOT Research Services  
395 John Ireland Blvd., Mail Stop 330  
St. Paul, MN 55155  
(651) 261-2325  
email: holdhusen@infonline.net

**FIRST PAST RESIDENT**

Bill Arnold, P.E.  
University of Minnesota  
Department of Civil Engineering  
500 Pillsbury Drive SE  
Minneapolis, MN 55455-0116  
(612) 625-8582  
email: arnol032@umn.edu

July 12, 2013

Prof. Steven L. Crouch  
Dean College of Science & Engineering  
105 Walter Library  
University of Minnesota

Dear Dean Crouch:

As President of the Minnesota Section of the American Society of Civil Engineers (ASCE), I am writing in support of the proposed name change for the Department of Civil Engineering to "Department of Civil, Environmental, and Geo- Engineering." The executive committee met with department head Prof. Joseph Labuz on April 5, 2013, and he discussed the reasons for the proposed name change. The executive committee unanimously voted to support the name change for the department.

Prof. Labuz also attended our Section meeting on April 24, 2013, to discuss the name change with those ASCE members in attendance. While several questions and some concerns were voiced, the feedback from members was overall supportive. Therefore, on behalf of both the executive committee and the Section membership, I wish to reiterate our general support for the name change.

Sincerely,



Seth D. Spychala, P.E.  
2012-2013 ASCE MN President

