

Proposal to Create “4+1 BCE/MCE” and “4+1 BENV/MCE” Programs in the Department of Civil and Environmental Engineering

Background and Motivation

The Bachelor's degree in Civil or Environmental Engineering is the minimum requirement for practicing in these professions today, and is also one of the key requirements for becoming a licensed professional engineer. However, more and more the industry is demanding more advanced training and education of our students in order to handle the complex problems we are currently facing with our deteriorating infrastructure and ever changing environment. There is, in fact, a movement afoot to change that and to make the master's degree the first professional degree for the practice of civil or environmental engineering. The American Society of Civil Engineers Policy 465 outlines the need for students today to have more training in order to practice, and defines minimum requirements for the advanced training. If adopted and enforced by the state licensing boards for professional engineers, in the future a Masters degree or 30+ credits may be required to become a licensed professional engineer. This provides the background and motivation for the need to provide alternative, cost-effective, and accelerated programs for obtaining the masters degree in civil or environmental engineering.

The 4+1 BCE/MCE and 4+1 BENV/MCE programs proposed herein will provide the opportunity for talented students to complete a Bachelors degree in Civil or Environmental Engineering and a Masters degree in Civil Engineering in less time, and therefore at a reduced cost, than they would through the normal course of sequential study. Part of the time savings is achieved by “dual-counting” up to 6-credits of qualified course work taken while an undergraduate towards the graduate degree.

The benefits to the students are: (1) completing both degrees in less time than it would normally take to complete the degrees sequentially, (2) less time implies reduced costs, (3) greater marketability upon graduation, (4) the opportunity to engage in advanced study, and (5) shorter in-practice time to sitting for the professional engineer's license.

Proposal:

The Department of Civil and Environmental Engineering offers two four year undergraduate engineering degrees, the Bachelor of Civil Engineering (BCE) degree and the Bachelor of Environmental Engineering (BENV) degree. It also offers several graduate degrees, including the Master of Civil Engineering (MCE) (by number of graduates it is the most popular graduate degree offered by the department). The master's degrees can be completed with the traditional thesis option (24 credits of course work and 6 credits of thesis) or the non-thesis (30 credits of course work) option.

It is proposed to create

1. A 4+1 BCE/MCE program
2. A 4+1 BENV/MCE program

It should be noted that this proposal does not intend to create any new degrees, but rather outlines a process by which a qualified undergraduate student may begin their graduate studies in their senior year and complete both degrees in as little as five years.

Eligibility:

The program is limited to UD undergraduates pursuing the BCE or BENV degree, with a minimum grade point average of 3.25. Students must have completed at least 90 credits toward the undergraduate degree before they can be enrolled in the program. Only full-time students are

eligible for this program.

Admission requirements:

Students would normally apply to the program in the spring semester of their junior year, or when they have completed 75 credits toward the undergraduate degree. Students must meet all of the requirements for admission to the regular graduate program; however, students are not required to take the GRE to gain admission to this program.

The application deadline is April 15. Students will be notified of the decision in the summer, after junior year grades have been recorded.

Program Requirements:

- Students must fulfill all of the requirements for the Masters of Civil Engineering degree.
- Students may choose the traditional thesis option or the non-thesis option (the thesis option may require more time).
- Up to 12 credits of graduate course work (600 level and above) may be taken while an undergraduate and count towards the graduate degree.
- Of these, up to 6 credits may be “dual-counted” towards the Bachelor’s and the Master’s degrees. The dual-counted courses must be established classes in civil or environmental engineering, i.e., independent study or research cannot be dual-counted. The dual-counted courses must be taken as Technical Electives for the undergraduate degree.
- The student must submit a list of graduate courses to be taken while an undergraduate for approval to the Graduate Program Coordinator before enrolling in any of these courses.

Other Considerations:

- Students who intend to ultimately pursue a Ph.D. degree should consult with their advisor regarding the choice of thesis versus non-thesis option.
- Financial support, in the form of teaching assistantships, research assistantships, or graduate assistantships are typically not available to students enrolled in the 4+1 program. Under some circumstances, students who adopt the thesis option may be considered for financial support in their 5th year of study.