

Department of Civil and Environmental Engineering (CEE)

PhD Degree Requirements

1) **AREAS OF STUDY**

- a) *Sustainability and Environmental Engineering (SEE)*
- b) *Advanced Infrastructure Systems (AIS)*

2) **COURSEWORK** – 72 Credits

- a) *Major Concentration* – 45 Credits (Minimum 24 Credits of Lecture Courses)
- b) *Minor Concentration* – 9 Credits (Minimum 9 Credits of Lecture Courses)
- c) *Dissertation* – 18 Credits (Minimum 12 Credits of CEE 3999)

Coursework Notes:

- All PhD students must complete CEE 2612 – Design and Analysis of Experiments as part of their *Major Concentration* Coursework.
- Students within the **SEE** Area of Study must complete 2 courses from the following 3 options (or equivalent*) as part of their Major Concentration Coursework:
 - o CEE 2502 – Physical and Chemical Principles in Environmental Engineering
 - o CEE 3408 OR 3414 – Advanced Environmental Fluid Mechanics OR Advanced Hydrology
 - o CEE 3609 – Advanced Life Cycle Methods
- Students within the **AIS** Area of Study must complete the following (or equivalent*) as part of their *Major Concentration* Coursework:
 - o CEE 2333 – Introduction to Finite Element Methods
 - o CEE 2321 – Introduction to Elasticity, Plasticity and Fracture (or equivalent*)
- In addition to the 3 required courses, each student must complete 3 courses towards the *Minor Concentration* and 5 more elective courses towards the *Major Concentration* for a **total of 11 Lecture Courses**, i.e., a minimum of 33 credits of post-baccalaureate coursework taken at Pitt (2XXX level or higher) or transferred in from prior post-baccalaureate study. This coursework should be comprised of didactic (“book”) courses and not include seminar or research courses.
- The student’s graduate advisor must approve all courses, and a plan of study must be completed and approved at the time of the Preliminary Exam by the faculty conducting the exam.
- Up to 30 credits may be applied to the *Major Concentration* and/or *Minor Concentration* from previously completed post-baccalaureate study.
- A minor area of concentration can be within any approved coherent area of science or engineering at the University of Pittsburgh outside of CEE.
- Doctoral Research (CEE 3997) may only be taken following successful completion of the PhD Preliminary Exam.
- At least 12 credits of the *Dissertation* must be taken as Doctoral Dissertation (CEE 3999), which may only be taken following successful completion of the

- PhD Dissertation Proposal Exam. Remaining *Dissertation* credit may be taken as Doctoral Research (CEE 3997) or Doctoral Dissertation.
- All students must enroll in the departmental seminar (CEE 2085) every semester of full-time residency (i.e., full-time study in the PhD program).

****Courses can be accepted as “equivalent” with prior approval by both the student’s academic advisor and the academic coordinator***

3) EXAMINATIONS

a) *Preliminary Exam (i.e., Qualifying Exam)*

Students must pass a comprehensive examination administered by the CEE (and in some special instances SSOE) faculty, to assess the student’s academic preparation and ability to conduct doctoral-level research. The examination is given twice per year during the months of January and May. The exam is take-home format consisting of three written questions, 1 provided by the student’s graduate advisor and 2 provided by additional faculty within the student’s chosen area of study. Following completion of the written exam the student must meet with the examining faculty to discuss and provide any necessary clarification on their exam answers. Not counting the Summer term, full-time students already with an MS (or equivalent) should take the exam following completion of their first 2 terms of study, while full-time students without an MS (or equivalent) should take the exam no later than completion of their first 3 terms of study. A student must have a cumulative GPA of 3.0/4.0 or higher to be allowed to participate in the examination. A student is allowed no more than 2 opportunities to take the qualifying examination and will be dismissed if both attempts result in a failing score.

b) *Comprehensive Exam and Dissertation Proposal*

Students must submit a written proposal of their expected dissertation research and pass a presentation and comprehensive oral examination administered by the student’s doctoral committee. The written proposal is recommended to be in the format of a standard federal research proposal (e.g., NSF) in terms of length, formatting, and technical content. A student must have a cumulative GPA of 3.0/4.0 or higher to be allowed to participate in the examination. The examination can be administered no sooner than 1 term (i.e., 4 months) following completion of the Preliminary Exam and no later than 2 terms (i.e., 8 months) prior to the Dissertation Defense. The exam must be successfully completed prior to the completion of 3 years of full-time study in the CEE PhD program. The exam can be attempted no more than twice, and a failure on 2 attempts results in a dismissal from the CEE PhD program. Successful completion of the examination results in “Admission to Candidacy” for a student. PhD Candidates must meet at least annually with their doctoral committees.

c) *Dissertation Defense*

Students must pass an oral presentation and defense of their completed dissertation, administered by the student’s doctoral committee. The Defense must be announced to the University at least 2 weeks in advance of the scheduled date for the event.

4) **DOCTORAL COMMITTEE**

Under the guidance of his/her graduate advisor, a student must form a doctoral committee of 4 or more persons, including at least one from another department in the University of Pittsburgh (other than CEE) or from an appropriate graduate program at another academic institution. The chair of the committee must be appointed to the University of Pittsburgh Graduate Faculty.

5) **ADDITIONAL NOTES**

- i) Students should strive for one or more peer-reviewed journal articles accepted for publication by the time of graduation.
- ii) Students must attain a final grade point average of 3.20 or higher to be awarded their PhD.
- iii) Students seeking the PhD degree are required to engage in a minimum of one term of full-time doctoral study, which excludes any other employment except as approved by the CEE department, but should include seminar attendance and a presence within the department.
- iv) International students from universities where English is not the primary language of study are required to complete an English competency exam upon arrival at the University of Pittsburgh. If the results of this exam are not satisfactory, students may be required to take up to three additional English language courses that do not count towards the degree program coursework requirements.