DOCTOR OF PHILOSOPHY (PHD) DEGREE IN THE FIELD OF CIVIL ENGINEERING

Program Learning Outcomes for the PhD Degree in the field of Civil Engineering

Upon completing the PhD degree in the field of Civil Engineering, students will be able to:

1. Demonstrate a solid foundation in civil and environmental engineering at the graduate level.
2. Acquire advanced knowledge of the principles of civil and environmental engineering and apply them to advanced technical problems.
3. Conduct an independent research program.
4. Demonstrate professional written and oral communication skills.

Requirements for the PhD Degree in Civil Engineering

For general university requirements, please see Doctoral Degrees (ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-doctoral-degrees). Students pursuing the PhD degree program in Civil Engineering must:

- Complete 90 credit hours of approved courses past BS degree (60 credit hours past MS degree) with high standing (see guidelines on the department website (http://www.ceve.rice.edu))
- Spend at least four semesters in full time study at Rice and successfully accomplish the following:
  - Pass a preliminary examination in civil engineering (see guidelines on the department website (http://www.ceve.rice.edu))
  - Pass a qualifying examination on course work, proposed research, and related topics
  - Complete a dissertation indicating an ability to conduct original and scholarly research
  - Pass a formal public oral examination on the thesis and related topics.

PhD students in the EES track take the preliminary exam, administered by department faculty, after two semesters of course work. Civil engineering graduate students will be required to take their written preliminary exam on Friday before the start of the spring semester, 1.5 years from the fall semester they enter into the program, and take the oral exam on Friday of the first week of classes. If a student enters in the spring semester, he/she needs to take the exam in the following spring semester along with other students. Students who pass this exam then from a doctoral committee according to department requirements.

The qualifying examination is administered by the doctoral committee after students develop a research proposal to demonstrate their preparation for the proposed research and identify any areas requiring additional course work or study. As part of the advanced degree training, we also may require students to assist the faculty in undergraduate courses and laboratory instructions.

Summary

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<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<td></td>
<td>Total Credit Hours Required for the PhD Degree in the field of Civil Engineering</td>
<td>90</td>
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Policies for the PhD Degree in the field of Civil Engineering

Department of Civil and Environmental Engineering Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Civil and Environmental Engineering publishes a graduate program handbook, which can be found here: http://gradhandbooks.rice.edu/2017_18/Civil_Environmental_Engineering_Graduate_Handbook.pdf.

Admission

Applicants pursuing graduate education in structural engineering, structural mechanics, and geotechnical engineering should have a BS in Civil Engineering with a significant emphasis on structural engineering, but students with other undergraduate degrees may apply if they have adequate preparation in mathematics, mechanics, and structural analysis and design.

Applicants pursuing graduate education in environmental engineering or hydrology should have a BS or BA in related areas of science and engineering and preparation in mathematics, science, and engineering or related courses. A BS degree in Engineering or a degree in natural science is preferred.

Successful applicants typically have at least a 3.00 (B) grade point average in undergraduate work and high Graduate Record Examination (GRE) scores. For general university requirements, see Graduate Degrees (ga.rice.edu/graduate-students/academic-opportunities/degrees) and Admission to Graduate Study (ga.rice.edu/graduate-students/academic-policies-procedures/admission).

For additional information, please see the Civil and Environmental Engineering website: http://ceve.rice.edu/

Opportunities for the PhD Degree in the field of Civil Engineering

Fellowships and Opportunities

- NASA Internships: multiple opportunities are available for undergraduate and graduate students for spring and fall semesters, as well as year-long appointments.
- NRC Research Associateship Program: the National Academies of Sciences, Engineering, and Medicine offer paid postdoctoral, senior, and graduate fellowships.
- NASA Fellowships and other opportunities: NASA offers several internships, fellowships, and scholarships for both undergraduate and graduate students.
- NSF Graduate Research Fellowship Program (NSF-GRFP): provides fellowships to individuals selected early in their graduate careers based on their demonstrated potential for significant achievements in science and engineering.
• **Fullbright-Hays Doctoral Dissertation Research Abroad Program (DDRA):** provides grants to fund individual doctoral students to conduct research in other countries in modern foreign languages and area studies for periods of 6 to 12 months.

• **DOE Computational Science Graduate Fellowship:** The Department of Energy Computational Science Graduate Fellowship (DOE CSGF) program provides outstanding benefits and opportunities to students pursuing doctoral degrees in fields of study that utilize high performance computing to solve complex problems in science and engineering.

• **DOD National Defense Science and Engineering Graduate Fellowship (NDSEG):** it is a highly competitive portable fellowship that is awarded to US citizens and nationals who intend to pursue a doctoral degree in one of fifteen supported disciplines.

• **Pathways to Science:** it is a project of the Institute for Broadening Participation. The organization places emphasis on connecting underrepresented groups with STEM programs, funding, mentoring, and resources. Fellowships for masters and doctoral students are available, as is funding for travel and summer institutes.

**Student Clubs**

• **Civil and Environmental Department Graduate Student Association:** The main purpose of the club is 1) foster better professional and personal relationships among students and between students and faculty members 2) provide a forum for concerns, both professional and personal, about graduate student life and 3) foster professional growth through mentoring, recruitment, and affiliate/internship relationships.

• **Earthquake Engineering Research Institute:** [http://eeri.rice.edu](http://eeri.rice.edu). The objective of this student chapter is to encourage, facilitate, and promote learning and interest among students in the field of earthquake engineering through interaction with professionals and experts and through interdisciplinary involvement.

For additional information, please see the Civil and Environmental Engineering website: [http://ceve.rice.edu/](http://ceve.rice.edu/)