

Doctor of Philosophy Degree in Civil Engineering: Building Performance Track

The Department of Architecture offers the opportunity for advanced study and research leading to the Doctor of Philosophy degree in Civil Engineering. In collaboration with the College of Engineering, the Department of Architecture offers Building Performance track, one of six separate tracks of the Ph.D. degree in Civil Engineering. The Building Performance Track offers an opportunity to conduct advanced research that is reinforced with analytical and creative design skills in diverse fields in architecture, technology, historic preservation, and environmental building performance and sustainability. The educational objective of this multidisciplinary program is to produce graduates who are capable of conducting original research in industry or academia as well as assuming a leadership role in their chosen employment field. The Ph.D. degree in Civil Engineering is awarded to candidates who display an in-depth understanding of the subject matter and demonstrate the ability to make an original contribution to knowledge in their field of specialty.

The regulations for this degree comply with the general University regulations (refer to Chapter 2, General Academic Regulations, and Chapter 5, Doctoral Degree Regulations).

Admission Requirements

Applicants must satisfy the following requirements, in addition to satisfying the University-wide graduate admission requirements (refer to Chapter 1, Admission):

- a Bachelor of Science degree and a Master of Science degree from an accredited university, and a minimum grade point average of 3.0 in upper-division and graduate courses. The degrees should be in civil engineering, Architecture, Construction Science and Management, or other related disciplines. Exceptional applicants without a Master of Science degree may be considered for admission to the program on a case-by-case basis;
- three letters of recommendation from persons familiar with the applicant's academic potential;
- official Graduate Record Examination (GRE) scores;
- a letter of research/specialization interest; and
- a résumé/curriculum vita.

Applications must be submitted to the UTSA Graduate School online at <http://graduateschool.utsa.edu/>. Incomplete applications will not be considered. Acceptance to the program is determined by the Department Graduate Studies Committee (GSC) contingent upon available funding. Full-time students accepted to the program are eligible for financial support in the form of competitive teaching assistantships, research assistantships, or research fellowships.

Degree Requirements

The Doctoral program in Civil Engineering requires that students complete a minimum of 60 semester credit hours beyond the Master's degree. This coursework includes courses that have been designed to provide advanced instruction in areas considered to form the foundation for the disciplines of civil engineering, Architecture, and Construction Science. Enrollment in the Graduate Seminar is required for a minimum of 2 semester credit hours. A minimum of 15 semester credit hours of Doctoral Research and 15 semester credit hours minimum of Doctoral Dissertation must be completed prior to graduation. Any grade lower than "B" in graduate or remedial coursework at the undergraduate level does not count toward the 60 semester credit hours. Students can apply, with the approval from the chair of their Dissertation Committee, up to 12 semester credit hours of graduate coursework to elective courses (see below), if not applied toward their Master's degree. Students with only a baccalaureate degree are

required to have a minimum of 75 semester credit hours to graduate. Additional degree requirements include both passing a written and/or oral qualifying examinations, writing a doctoral dissertation, and passing a final examination/dissertation defense.

Twenty-eight semester credit hours of required courses must be selected by each student according to his/her selected track of study, as defined below. These need to be approved by the student's Dissertation Committee. These elective courses may be offered by departments in the College of Engineering, the College of Architecture, Construction and Planning, the College of Sciences or by other departments at UTSA.

Building Performance Track Degree Requirements:

Students that have obtained a Master's degree are required to complete the following courses. Faculty advisors will develop a plan of study based on the career goals and dissertation objectives of the students. The plan of study will include courses that build the fundamental knowledge required to complete the dissertation, and courses outside of traditional areas for students involved in multidisciplinary research:

A. Core Curriculum Courses (9 semester credit hours)		9
At least three Core curriculum CEE courses will be selected from the list below with the approval of the dissertation committee chair. Other CEE courses could be substituted with the approval of the track coordinator.		
CE 5013	Civil Engineering Systems Analysis	
CE 5043	Advanced Civil Engineering Statistics	
CE 5093	Geographic Information Systems	
CE 5483	Urban Transportation	
CE 5643	Sustainable Energy Systems	
CE 5713	Advanced Structural Analysis	
CE 5723	Transportation Planning	
CE 5733	Experimental Methods in Environmental Engineering	
CE 6113	Global Change	
CE 6953	Independent Studies	
B. Track Electives (12 semester credit hours)		12
These can be selected from 5000–7000 level courses offered in the Department of Architecture, with the approval of the Dissertation Committee. The objective of these courses is to provide advanced training in areas considered to form the foundation for the Building Performance track.		
C. Free Electives (6 semester credit hours)		6
These can be selected from 5000–7000 level courses offered in other UTSA departments, with the approval of the Dissertation Committee. The objective of these courses is to expanded knowledge outside of traditional areas and promote interdisciplinary research.		
D. Seminars (3 semester credit hours)		3
ARC 7011	(repeated)	
E. Doctoral Research and Dissertation (30 semester credit hours)		30

15 semester credit hours required of Doctoral Research and 15 semester credit hours required of Doctoral Dissertation:

ARC 7213	Doctoral Research
or ARC 7212	Doctoral Research
or ARC 7211	Doctoral Research
ARC 7313	Doctoral Dissertation
or ARC 7312	Doctoral Dissertation
or ARC 7311	Doctoral Dissertation

Total Credit Hours **60**

Students that have obtained a Bachelor's degree are required to complete the following courses. Faculty advisors will develop a plan of study based on the career goals and dissertation objectives of the students. The plan of study will include courses that build the fundamental knowledge required to complete the dissertation, and courses outside of traditional areas for students involved in multidisciplinary research:

A. Core Curriculum Courses (9 semester credit hours) **9**

At least three Core curriculum CEE courses will be selected from the list below with the approval of the dissertation committee chair. Other CEE courses could be substituted with the approval of the track coordinator.

CE 5013	Civil Engineering Systems Analysis
CE 5043	Advanced Civil Engineering Statistics
CE 5093	Geographic Information Systems
CE 5483	Urban Transportation
CE 5643	Sustainable Energy Systems
CE 5713	Advanced Structural Analysis
CE 5723	Transportation Planning
CE 5733	Experimental Methods in Environmental Engineering
CE 6113	Global Change
CE 6953	Independent Studies

B. Track Electives (21 semester credit hours) **21**

These can be selected from 5000–7000 level courses offered in the Department of Architecture, with the approval of the Dissertation Committee. The objective of these courses is to provide advanced training in areas considered to form the foundation for the Building Performance track.

C. Free Electives (12 semester credit hours) **12**

These can be selected from 5000–7000 level courses offered in other UTSA departments, with the approval of the Dissertation Committee. The objective of these courses is to expanded knowledge outside of traditional areas and promote interdisciplinary research.

D. Seminars (3 semester credit hours)	3
ARC 7011 (repeated)	
E. Doctoral Research and Dissertation (30 semester credit hours)	30
15 semester credit hours required of Doctoral Research and 15 semester credit hours required of Doctoral Dissertation:	
ARC 7213	Doctoral Research
or ARC 7212	Doctoral Research
or ARC 7211	Doctoral Research
ARC 7313	Doctoral Dissertation
or ARC 7312	Doctoral Dissertation
or ARC 7311	Doctoral Dissertation
Total Credit Hours	75

Dissertation Committee

Students must choose a Dissertation Committee consisting of at least four members. For the Building Performance Track, the chair of the committee must be a member of the graduate faculty from the Architecture Department. A minimum of one committee member must be a graduate faculty member from a different technical area within the CEE Department, from a different department at UTSA, or an external member not affiliated with UTSA. Students must submit the names of their Dissertation Committee to the Graduate Advisor of Record (GAR) by the end of their second semester of study.

Advancement to Candidacy

Ph.D. students advance to candidacy after completing their written and/or oral qualifying examinations. First, students must complete fundamental courses and then take the written or oral qualifying examination. Full-time students must take the written qualifying examination by the end of their second semester of study. Part-time students need to take the written qualifying examination at a time dictated by the CEE graduate studies committee. The qualifying examination may include questions on fundamentals and applied topics related to the six technical areas, namely structures, geotechnical, transportation, water resources, building performance, and construction science and management. In addition, the students may be asked to carry out a critical review of engineering or other relevant research publications. A written qualifying examination will be administered by the CEE graduate studies committee (GSC) with input from the faculty participating in the program. The qualifying examination for the Building Performance Track will include questions on fundamental and applied topics related to Building Performance. Students will be allowed to take an oral qualifying examination in lieu of the written exam. Oral qualifying examinations will be administered by the student's dissertation committee. No more than two attempts to pass the qualifying examination are permitted. Students who fail the qualifying examination twice are terminated from the program.

Upon successful completion of the qualifying examination, students are allowed to take Doctoral Research credit hours. Students must take their oral comprehensive examination within two semesters after passing their qualifying examination. The oral comprehensive examination is a dissertation proposal defense. The dissertation proposal

should describe the topic, the literature review, the proposed methodology and approach, as well as highlight the novelty and potential contribution of the topic to the scientific field. The student's Dissertation Committee chair must approve the student's research proposal before scheduling the oral examination. No more than two attempts to pass the comprehensive examination are permitted. Students who fail the comprehensive examination twice are terminated from the program. Upon successful completion of the oral comprehensive examination, students advance to Ph.D. candidacy and are allowed to take Doctoral Dissertation credit hours.

Results of the written and/or oral examinations must be reported to the GSC and the Dean of the Graduate School. Admission into the Doctoral program does not guarantee advancement to candidacy. After advancement to candidacy, the student's Dissertation Committee can be changed at the student's request and with the approval of the chair of the GSC.

Dissertation

Candidates must demonstrate their ability to conduct independent research by completing an original dissertation. The Dissertation Committee guides, critiques and finally approves the candidate's dissertation. The format of the dissertation must follow the doctoral degree regulations of the Graduate School as documented under chapter 5 of this catalog.

Final Oral Dissertation Defense

The final oral defense consists of a public presentation of the dissertation work by the Doctoral candidate followed by a question/answer period by his/her Dissertation Committee. The student must notify the Graduate School in writing two weeks prior to the final scheduled oral defense. Results of the oral defense are reported to the Dean of the Graduate School. Awarding of the degree is based on the approval of the candidate's Dissertation Committee and the recommendation of the Dean of the Graduate School, who certifies the completion of all University-wide requirements.

Contact Information

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