

Ph.D. in Civil Engineering

Degree Requirements

The department approves specific degree requirements and dissertation topics on an individual basis. Students must attain a minimum overall GPA of 3.0. Students must conduct independent original research in a specific area of civil engineering. Students must select an advisor willing to supervise dissertation work.

Code	Title	Credits
600-level or 700-level course work		12
700-level course work		12
CE 790	Doct Dissertation & Res ¹	36
CE 790	Doct Dissertation & Res ²	0
CE 791	Graduate Seminar ³	0
Total Credits		60

Course List

- ¹ Credits should be completed before submission of the final dissertation document.
- ² Students must register for a minimum of 3 credits of CE 790 Doct Dissertation & Res until the dissertation has been submitted and accepted.
- ³ Required of all doctoral students every semester.

Ph.D. in Civil Engineering (students entering with a master's degree in civil engineering or equivalent)

Code	Title	Credits
Electives		
700-level courses ¹		12
Dissertation		
CE 790 ²	Doct Dissertation & Res	
CE 792 ²	Pre-Doctoral Research	
Seminar		
CE 791 ³	Graduate Seminar	0
Total Coursework Credits		12

¹ No more than 3 credits may be received for CE 725 (Independent Study) and no more than 3 credits may be received for CE 726 (Independent Study). 700-level courses may be substituted by 600-level courses if the academic advisor appeals on behalf of the student to the Office of Graduate Studies and receives approval. A Ph.D. student's dissertation committee may ask the student to take additional courses above the aforementioned minimum requirements

² Ph.D. students who pass the Qualifying Examination (QE) must register for 3 credits of pre-doctoral research (CE 792 Pre-Doctoral Research) per semester until they defend successfully the dissertation proposal.

Ph.D. students who defend the dissertation proposal successfully must then register for the 1-credit

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dissertation course (CE 790 Doctoral Dissertation & Research) each semester until they complete all degree requirements.

³ Required of all doctoral students every semester.

Ph.D. in Civil Engineering (students entering with only a baccalaureate degree in civil engineering or equivalent)

Code	Title	Credits
Electives		
600 and 700-level courses ¹		36
Dissertation		
CE 790 ²	Doct Dissertation & Res	
CE 792 ²	Pre-Doctoral Research	
Seminar		
CE 791 ³	Graduate Seminar	0
Total Coursework Credits		36

¹ A minimum of 12 credits of this requirement must be 700 level courses. No more than 3 credits may be received for CE 725 (Independent Study) and no more than 3 credits may be received for CE 726 (Independent Study). 700-level courses may be substituted by 600-level courses if the academic advisor appeals on behalf of the student to the Office of Graduate Studies and receives approval. A Ph.D. student's dissertation committee may ask the student to take additional courses above the aforementioned minimum requirements

² Ph.D. students who pass the Qualifying Examination (QE) must register for 3 credits of pre-doctoral research (CE 792 Pre-Doctoral Research) per semester until they defend successfully the dissertation proposal.

Ph.D. students who defend the dissertation proposal successfully must then register for the 1-credit dissertation course (CE 790 Doct Dissertation & Res) each semester until they complete all degree requirements.

³ Required of all doctoral students every semester.

Preliminary Qualifying Examination

Full-time students must take the preliminary qualifying exam for the first time within one year of beginning active study and must pass it completely by the next time the examination is offered. Part-time students must take the preliminary qualifying exam for the first time within three years of the beginning of active study and must pass it completely by the next time the examination is offered. Exceptional students having only bachelor's degrees who are admitted directly into the doctoral program must take the preliminary qualifying examination within one and one-half years of admission and must pass it within two years. All students are permitted to take the examination only twice.

Dissertation Committee

~~After passing the preliminary qualifying examination, each student in consultation with the major faculty member develops a list of five faculty members who have agreed to serve on an advisory committee as follows: two or three members of the graduate faculty in the student's major area of interest; a member of the graduate faculty in the student's major area appointed by the department chairperson; a member of the graduate faculty of the Department of Civil and~~

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~~Environmental Engineering from another field of interest; a member of the graduate faculty from the area of the student's minor field of interest.~~

The committee consists of a minimum of five members, one of whom is external to the Ph.D. program or to NJIT. The majority of the committee members are NJIT Graduate Faculty from the student's program or department having research experience or developing research interests related to the dissertation research. The dissertation committee chairperson typically is the doctoral candidate's dissertation advisor. This chairperson must be a tenured or tenure-track faculty member in the program. Two committee members, including an external member, may serve as co-advisors. The advisor, or at least one of the co-advisors, must be a tenured or tenure-track faculty member from the program. The other members of the dissertation committee, except for an external member from outside the university, must be members of NJIT's Graduate Faculty. Former students of any committee member, who are less than four years beyond doctoral completion, are specifically excluded from membership. The external members should either have appropriate faculty rank elsewhere or have sufficient research expertise.

Research Proposal

Doctoral students must prepare a written research proposal and make an oral presentation for approval by their dissertation committee. The proposal must be presented after formation of the committee but within ~~six~~ twelve months after passing the qualifying examination. Research is expected to investigate or develop a unique contribution to science and technology.

Dissertation Defense

An oral defense of the dissertation is required after submission of the final document to the department for approval. Signatures of all members of the dissertation committee must be received for final approval to be granted.

Ph.D. in Environmental Engineering

Degree Requirements

The department approves specific degree requirements and dissertation topics on an individual basis. Students must attain a minimum overall GPA of 3.0. Students must conduct independent original research in a specific area of environmental engineering. Students must select an advisor willing to supervise dissertation work.

600-or-700-level-course-work		12
700-level-course-work		12
<u>ENE 790</u>	Doctoral Dissert & Res- ¹	36
<u>ENE 791</u>	Graduate Seminar ²	0
Total Credits		60

¹ The 36 credits should be completed before submission of the final dissertation document. Students must register for a minimum of 3 credits of until the dissertation has been submitted and accepted.

² Doctoral students are required to register for the seminar every semester.

Ph.D. in Environmental Engineering (students entering with a master's degree in environmental engineering or equivalent)

Code	Title	Credits
Electives		
700-level courses ¹		12
Dissertation		
<u>ENE 790</u> ²	Doct Dissertation & Res	
<u>ENE 792</u> ²	Pre-Doctoral Research	
Seminar		
<u>ENE 791</u> ³	Graduate Seminar	0
Total Coursework Credits		12

¹ No more than 3 credits may be received for ENE 725 (Independent Study) and no more than 3 credits may be received for ENE 726 (Independent Study). 700-level courses may be substituted by 600-level courses if the academic advisor appeals on behalf of the student to the Office of Graduate Studies and receives approval. A Ph.D. student's dissertation committee may ask the student to take additional courses above the aforementioned minimum requirements

² Ph.D. students who pass the Qualifying Examination (QE) must register for 3 credits of pre-doctoral research (ENE 792 Pre-Doctoral Research) per semester until they defend successfully the dissertation proposal.

Ph.D. students who defend the dissertation proposal successfully must then register for the 1-credit dissertation course (ENE 790 Doctoral Dissertation & Research) each semester until they complete all degree requirements.

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³ Required of all full-time doctoral students every semester.

Ph.D. in Environmental Engineering (students entering with only a baccalaureate degree in environmental engineering or equivalent)

Code	Title	Credits
Electives		
600 and 700-level courses ¹		36
Dissertation		
ENE 790 ²	Doct Dissertation & Res	
ENE 792 ²	Pre-Doctoral Research	
Seminar		
ENE 791 ³	Graduate Seminar	0
Total Coursework Credits		36

¹ A minimum of 12 credits of this requirement must be 700 level courses. No more than 3 credits may be received for ENE 725 (Independent Study) and no more than 3 credits may be received for ENE 726 (Independent Study). 700-level courses may be substituted by 600-level courses if the academic advisor appeals on behalf of the student to the Office of Graduate Studies and receives approval. A Ph.D. student's dissertation committee may ask the student to take additional courses above the aforementioned minimum requirements

² Ph.D. students who pass the Qualifying Examination (QE) must register for 3 credits of pre-doctoral research (ENE 792 Pre-Doctoral Research) per semester until they defend successfully the dissertation proposal.

Ph.D. students who defend the dissertation proposal successfully must then register for the 1-credit dissertation course (ENE 790 Doctoral Dissertation & Research) each semester until they complete all degree requirements.

³ Required of all full-time doctoral students every semester.

Qualifying Examination

Full-time students must take the qualifying examination for the first time within one year of beginning active study and must pass it completely by the next time the examination is offered. Part-time students must take the qualifying examination for the first time within three years of the beginning of active study and must pass it completely by the next time it is offered. Exceptional students having only bachelor's degrees who are admitted directly into the doctoral program must take the qualifying examination within one and one-half years of admission and must pass it within two years. All students are permitted to take the examination only twice.

Dissertation Committee

~~After passing the qualifying examination, each student in consultation with the major faculty member develops a list of five faculty members who have agreed to serve on an advisory committee as follows: two or three members of the graduate faculty in the student's major area of interest; a member of the graduate faculty in the student's major area appointed by the department chairperson; a member of the graduate faculty of the Department of Civil and Environmental Engineering from another field of interest; a member of the graduate faculty from the area of the student's minor field of interest.~~

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The committee consists of a minimum of five members, one of whom is external to the Ph.D. program or to NJIT. The majority of the committee members are NJIT Graduate Faculty from the student's program or department having research experience or developing research interests related to the dissertation research. The dissertation committee chairperson typically is the doctoral candidate's dissertation advisor. This chairperson must be a tenured or tenure-track faculty member in the program. Two committee members, including an external member, may serve as co-advisors. The advisor, or at least one of the co-advisors, must be a tenured or tenure-track faculty member from the program. The other members of the dissertation committee, except for an external member from outside the university, must be members of NJIT's Graduate Faculty. Former students of any committee member, who are less than four years beyond doctoral completion, are specifically excluded from membership. The external members should either have appropriate faculty rank elsewhere or have sufficient research expertise.

Research Proposal

Doctoral students must prepare a written research proposal and make an oral presentation for approval by their dissertation committee. The proposal must be presented after formation of the committee but within ~~six~~ twelve months after passing the qualifying examination. Research is expected to investigate or develop a unique contribution to science and technology.

Dissertation Defense

An oral defense of the dissertation is required after submission of the final document to the department for approval. Signatures of all members of the dissertation committee must be received for final approval to be granted.

Ph.D. in Transportation Engineering

Degree Requirements

Graduate-level course work		42
700-level courses		12
<u>TRAN 790</u>	Doctoral Dissertation	36
<u>TRAN 791</u>	Doctoral Seminar	0
Total Credits		90

~~Requirements consist of a minimum of 54 credits of course work beyond the bachelor's degree, including at least 12 credits of 700-level courses, passage of a qualifying examination, a minimum of 36 credits of TRAN 790 Doctoral Dissertation and TRAN 791 Doctoral Seminar.~~

Independent original research must be conducted by the candidate in a specific area of transportation. Dissertation work must be of publishable quality.

Ph.D. in Transportation Engineering (students entering with a master's degree in transportation engineering or equivalent)

Code	Title	Credits
Electives		
700-level courses ¹		12
Dissertation		
<u>TRAN 790</u> ²	Doct Dissertation & Res	
TRAN 792 ²	Pre-Doctoral Research	
Seminar		
TRAN 791 ³	Graduate Seminar	0
Total Coursework Credits		12

¹ No more than 3 credits may be received for TRAN 725 (Independent Study) and no more than 3 credits may be received for TRAN 726 (Independent Study). 700-level courses may be substituted by 600-level courses if the academic advisor appeals on behalf of the student to the Office of Graduate Studies and receives approval. A Ph.D. student's dissertation committee may ask the student to take additional courses above the aforementioned minimum requirements

² Ph.D. students who pass the Qualifying Examination (QE) must register for 3 credits of pre-doctoral research (TRAN 792 Pre-Doctoral Research) per semester until they defend successfully the dissertation proposal.
Ph.D. students who defend the dissertation proposal successfully must then register for the 1-credit dissertation course (TRAN 790 Doctoral Dissertation & Research) each semester until they complete all degree requirements.

³ Required of all full-time doctoral students every semester.

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Ph.D. in Transportation Engineering (students entering with only a baccalaureate degree in transportation engineering or equivalent)

Code	Title	Credits
Electives		
600 and 700-level courses ¹		36
Dissertation		
TRAN 790 ²	Doct Dissertation & Res	
TRAN 792 ²	Pre-Doctoral Research	
Seminar		
TRAN 791 ³	Graduate Seminar	0
Total Coursework Credits		36

¹ A minimum of 12 credits of this requirement must be 700 level courses. No more than 3 credits may be received for TRAN 725 (Independent Study) and no more than 3 credits may be received for TRAN 726 (Independent Study). 700-level courses may be substituted by 600-level courses if the academic advisor appeals on behalf of the student to the Office of Graduate Studies and receives approval. A Ph.D. student's dissertation committee may ask the student to take additional courses above the aforementioned minimum requirements

² Ph.D. students who pass the Qualifying Examination (QE) must register for 3 credits of pre-doctoral research (TRAN 792 Pre-Doctoral Research) per semester until they defend successfully the dissertation proposal.

Ph.D. students who defend the dissertation proposal successfully must then register for the 1-credit dissertation course (TRAN 790 Doctoral Dissertation & Research) each semester until they complete all degree requirements.

³ Required of all full-time doctoral students every semester.

Qualifying Examination

All doctoral students must pass a doctoral qualifying examination. To prepare adequately for the examination, students should take appropriate course work in transportation as well as other related subjects.

The examination has four parts: the first three are written, and the fourth is oral. The oral part is a presentation made to the graduate faculty in Transportation and is given after the written parts are evaluated.

- Part I Analytical Techniques
- Part II Transportation Facilities and Operations
- Part III Transportation Planning and Technologies
- Part IV Oral (includes a field problem)

For additional information about doctoral degree requirements, refer to the Academic Policies and Procedures section.

Dissertation Committee

The committee consists of a minimum of five members, one of whom is external to the Ph.D. program or to NJIT. The majority of the committee members are NJIT Graduate Faculty from

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the student's program or department having research experience or developing research interests related to the dissertation research. The dissertation committee chairperson typically is the doctoral candidate's dissertation advisor. This chairperson must be a tenured or tenure-track faculty member in the program. Two committee members, including an external member, may serve as co-advisors. The advisor, or at least one of the co-advisors, must be a tenured or tenure-track faculty member from the program. The other members of the dissertation committee, except for an external member from outside the university, must be members of NJIT's Graduate Faculty. Former students of any committee member, who are less than four years beyond doctoral completion, are specifically excluded from membership. The external members should either have appropriate faculty rank elsewhere or have sufficient research expertise.

Research Proposal

Doctoral students must prepare a written research proposal and make an oral presentation for approval by their dissertation committee. The proposal must be presented after formation of the committee but within twelve months after passing the qualifying examination. Research is expected to investigate or develop a unique contribution to science and technology.

Dissertation

A program committee must approve a dissertation topic and an NJIT faculty member, approved by the program, must be available to supervise the dissertation research. An oral defense of the dissertation is required after the dissertation committee accepts the written document.