Environmental Engineering MSEnvE

COLLEGE OF ENGINEERING

Learn more about the Master of Science in Environmental Engineering.

About the Program

The MSEnvE program is designed to provide students with the opportunity to develop a greater technical competency in the general area of Environmental Engineering. Students are motivated to grow intellectually through the continued search for and use of knowledge, and are provided with the catalyst to become active, articulate and socially aware individuals. Graduates of the program are key contributors to the civil engineering and environmental engineering professions.

Time Limit for Degree Completion: 5 years

Campus Location: Main

Full-Time/Part-Time Status: The degree program can be completed on a full- or part-time basis.

Interdisciplinary Study: The program encourages interdisciplinary research with other branches of engineering as well as with various departments in the sciences and applied mathematics. Recent collaborative work with the Department of Mechanical Engineering includes projects on water flow and solute transport in porous media (aquifers) and the effects of turbulence on the mixing of oil spills at sea. Collaboration with the Department of Chemistry includes research on waste combustion products and surface complexation.

Areas of Specialization: For each of the two areas of specialization, research includes:

- Civil Engineering Systems – three major branches of civil engineering: construction engineering, structural engineering, and transportation engineering
- Environmental Engineering – the fundamentals and applications of water resources engineering, pollution in natural systems (water and air), and engineered treatment and remediation systems

For the MSEnvE program, students also choose between three tracks:

1. The Thesis Track is intended for students pursuing advanced research and includes 24 credits of didactic coursework, 3 credits of Project (CEE 9995), and 3 credits of Thesis (CEE 9996).
2. The Project Track introduces students to applied research and includes 27 credits of didactic coursework and 3 credits of Project (CEE 9995).
3. The Coursework Track provides students with an advanced engineering background for their future in the engineering profession through 30 credits of didactic coursework.

In the first term, the student and the Civil and Environmental Engineering (CEE) Graduate Program Director establish a graduate Plan of Study that outlines all required courses and the sequence for the student to follow. This form is used to track the student's progress as the various benchmarks in the program are completed. Once established, any revisions to the Plan of Study require approval in advance. However, if considering whether to change one's track, the student should note that:

- "Thesis" credits (CEE 9996) can only be applied toward the Thesis MSEnvE Track and cannot be applied to either the Project or Coursework Tracks.
- "Project" credits (CEE 9995) can be applied toward the Thesis and Project MSEnvE Tracks but cannot be used for the Coursework Track.

Job Prospects: Graduates with the MSEnvE in Environmental Engineering are employed by various engineering companies as well as government agencies in design, analysis and applications. Typical examples are water treatment facilities and regulatory agencies engaged in environmental regulation and pollution control; companies involved in construction project management; and those involved in structural design and analysis of buildings, bridges and other structures. Students who complete an MSEnvE with a thesis are prepared to enter a doctoral program.

Non-Matriculated Student Policy: Up to 9 credits of graduate Engineering coursework may be taken at Temple University on a non-matriculated basis and subsequently applied to the MSEnvE degree upon admission. If the applicant's undergraduate GPA was less than 3.0, a GPA of 3.25 or better is required on this non-matriculated graduate coursework to receive an admissions exception. Consequently, the CEE Graduate Program Director may encourage those with an undergraduate GPA less than 3.0 to take their first three graduate courses prior to making formal application to the MSEnvE program. (See the relevant Graduate School policies on special admission procedures for non-matriculated students: 02.23.11.03 and 02.24.19.)

Financing Opportunities: Three forms of financial aid are offered to graduate students:

1. Teaching Assistantship (TA): TA awards are made solely by the Department and require the awardee to work 20 hours per week in support of the Department's undergraduate programs. The TA is compensated with a 9-month stipend, a basic health-insurance plan, and 9 credits per term of tuition remission.

2. Research Assistantship (RA): Individual CEE faculty confer RA awards, using their research funds, upon students who appear well-qualified to carry out the research. Typically, this faculty member becomes the RA's Thesis advisor. The RA normally works up to 20 hours per week and is compensated with a stipend, basic health insurance, and tuition remission.
3. Fellowships: These highly competitive University-wide grants are typically awarded only to PhD-program applicants.

Admission Requirements and Deadlines

Application Deadline:

Fall: March 1
Spring: November 1

Applications are processed on a continual basis. Late applications may be considered for admission. Ordinarily, the applicant is informed of an admissions decision within 4 to 6 weeks of receipt of all supporting application documents.

APPLY ONLINE to this graduate program.

Review tuition and financial assistant deadlines to ensure financial aid consideration for the intended term of study.

Applicants who plan to matriculate full-time are automatically considered for financial aid awards so no separate application for financial aid is required.

Both admissions and financial aid award decisions originate in the Department of Civil and Environmental Engineering (CEE). Applicants are encouraged to contact the CEE Graduate Program Director for advice and consultation in the application process.

Letters of Reference:
Number Required: 3

From Whom: Letters of recommendation should be obtained from college or research faculty who are familiar with the applicant's competency. If the applicant has an established career in engineering, one of the letters should be provided by the applicant's immediate supervisor. Any applicant who has been out of school long enough that relevant academic reference letters appear impractical should contact the CEE Graduate Program Director to obtain a waiver of this admission requirement.

Coursework Required for Admission Consideration: Students not adequately prepared for advanced courses may be required to take a number of prerequisites. The CEE Department identifies the needed coursework on a case-by-case basis.

Bachelor's Degree in Discipline/Related Discipline: A bachelor's degree in Environmental Engineering is the preferred prerequisite degree. However, students who have earned a bachelor's degree in a related field are encouraged to apply, with the understanding that remedial preparatory courses may be a pre-condition of admission to the MSEnvE program.

University regulations stipulate that the applicant must have earned a 3.0 grade-point average on a 4.0 scale in their undergraduate studies, but admission exceptions are made for a variety of circumstances. (See Graduate School Policy 02.23.11.03.) The CEE Graduate Program Director helps the applicant navigate the admission possibilities, including the "Non-Matriculated Student Policy" option.

Official transcripts from all institutions of higher education attended, whether or not a degree was awarded, must be submitted. International applicants submit official transcripts or official NACES-accredited evaluation documentation that validates completion and conferral of a degree, diploma and/or certificate. All applicants must ensure transcripts and/or NACES-accredited documentation are sent directly from the institution(s) or NACES-accredited evaluation agency via email to gradengr@temple.edu or to the Temple University College of Engineering, 1947 N. 12th Street, Philadelphia, PA 19122-6077.

Statement of Goals: Describe your relevant technical experiences and career goals in one to two pages.

Standardized Test Scores:
GRE: Optional. If reported, scores that are not more than 5 years in advance of the application date are sent to test code 2945. (See Graduate School Policy 02.23.12.)

Applicants who earned their baccalaureate degree from an institution where the language of instruction was other than English, with the exception of those who subsequently earned a master’s degree at a U.S. institution, must ensure official scores are reported directly by the testing agency for a standardized test of English and meet one of these minimums:

- TOEFL iBT: 79
- IELTS Academic: 6.5
- PTE Academic: 53
- Duolingo: 110

Resume: Current resume required.

Transfer Credit: Graduate credits taken at an accredited institution prior to matriculation may be transferred into the MSEnvE program. In order to transfer, the courses must be equivalent to courses offered at Temple in the student's area of study and research, and the grades must be "B" or better. The maximum number of credits a student may transfer is 6. (See Graduate School Policy 02.24.21.)

Program Requirements

General Program Requirements:
Number of Credits Required Beyond the Baccalaureate: 30

Required Courses:

Thesis Track

Code	Title	Credit Hours
Core Courses		
CEE 5701	Physical Principals of Environmental Systems	3
or CEE 8701	Advanced Physical/Chemical Treatment Processes	
CEE 5702	Chemical Principles of Environmental Systems	3
or CEE 5762	Environmental Organic Chemistry	
CEE 5794	Advanced Biological Wastewater Treatment	3
or CEE 5793	Environmental Biotechnology	
Specialization Electives		
Select four from the following:		12
CEE 5621	Engineering Hydrology	
CEE 5622	Fate of Pollutants in Subsurface Environments	
CEE 5623	Contaminant Dynamics in Urban Streams	
CEE 5631	Environmental Hydrology	
CEE 5641	Urban Streams and Stormwater Management	
CEE 5711	Air Pollution Control	
CEE 5751	Water and Wastewater Treatment	
CEE 5795	Aquatic Toxicology in Environmental Engineering	
Approved Elective [1]		**3**
Research Courses		
CEE 9995	Project	3
CEE 9996	Thesis	3
Total Credit Hours		**30**

[1]

Approved electives generally include graduate courses within the CEE Department and may include up to, but no more than, 3 credits of ENGR 9182 Independent Study I or 3 credits of CEE 9991 Directed Research. Furthermore, students who wish to take graduate coursework in another department within the College of Engineering or outside the College in one of Temple University's other schools/colleges need to obtain the appropriate written approvals on their Plan of Study form.

Project Track

Code	Title	Credit Hours
Core Courses		
CEE 5701	Physical Principals of Environmental Systems	3
or CEE 8701	Advanced Physical/Chemical Treatment Processes	
CEE 5702	Chemical Principles of Environmental Systems	3
or CEE 5762	Environmental Organic Chemistry	
CEE 5794	Advanced Biological Wastewater Treatment	3
or CEE 5793	Environmental Biotechnology	
Specialization Electives		
Select five from the following:		15
CEE 5621	Engineering Hydrology	

CEE 5622	Fate of Pollutants in Subsurface Environments	
CEE 5623	Contaminant Dynamics in Urban Streams	
CEE 5631	Environmental Hydrology	
CEE 5641	Urban Streams and Stormwater Management	
CEE 5711	Air Pollution Control	
CEE 5751	Water and Wastewater Treatment	
CEE 5795	Aquatic Toxicology in Environmental Engineering	
Approved Elective [1]		**3**
Research Course		
CEE 9995	Project	3
Total Credit Hours		**30**

1

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Coursework Track

Code	Title	Credit Hours
Core Courses		
CEE 5701	Physical Principals of Environmental Systems	3
or CEE 8701	Advanced Physical/Chemical Treatment Processes	
CEE 5702	Chemical Principles of Environmental Systems	3
or CEE 5762	Environmental Organic Chemistry	
CEE 5794	Advanced Biological Wastewater Treatment	3
or CEE 5793	Environmental Biotechnology	
Specialization Electives		
Select six from the following:		18
CEE 5621	Engineering Hydrology	
CEE 5622	Fate of Pollutants in Subsurface Environments	
CEE 5623	Contaminant Dynamics in Urban Streams	
CEE 5631	Environmental Hydrology	
CEE 5641	Urban Streams and Stormwater Management	
CEE 5711	Air Pollution Control	
CEE 5751	Water and Wastewater Treatment	
CEE 5795	Aquatic Toxicology in Environmental Engineering	
Approved Elective [1]		**3**
Total Credit Hours		**30**

1

Approved electives generally include graduate courses within the CEE Department and may include up to, but no more than, 3 credits of ENGR 9182 Independent Study I or 3 credits of CEE 9991 Directed Research. Furthermore, students who wish to take graduate coursework in another department within the College of Engineering or outside the College in one of Temple University's other schools/colleges need to obtain the appropriate written approvals on their Plan of Study form.

Culminating Events:
Thesis Track:
The culminating events in the Thesis Track are typically undertaken during the last two successive terms of study. Successful completion requires the following:

- Thesis Proposal — CEE 9995 Project (3 credits)
  Under the guidance of the advisor, the student conducts independent research on an applied engineering topic of current interest and registers for CEE 9995. This work includes the research and preliminary results that form the basis of an extended study that the student plans to carry on in CEE 9996 Thesis in the following term. The student submits a research report as their Thesis Proposal to a committee consisting of three or more faculty members, including the faculty advisor, and presents their proposal in an open College-wide seminar, which is scheduled and posted at

least 10 business days in advance of the presentation date. Immediately following the presentation, the student's advisory committee questions the student about the details and strategy of the proposed research. The committee then accepts, accepts with revisions, or rejects the proposal.
The student must pass the Thesis Proposal before registering for CEE 9996. If the student fails Thesis Proposal, they may either re-register for CEE 9995 (1 credit) in the next regular term and repeat the entire proposal process or consider switching to the Project or Coursework Track. *NOTE: A second failure of Thesis Proposal results in automatic dismissal from the University.* If switching to another track, the Plan of Study form requires updating and appropriate approvals.

- Thesis Defense — CEE 9996 Thesis (3 credits)
  The student should register for CEE 9996 in the term that they plan to defend the thesis. The thesis document should be prepared in a format compliant with University standards. (See Graduate School Policy 02.26.12.02.) Two weeks prior to the thesis defense, the student provides the committee with a copy of the completed thesis and posts an announcement of the defense, which is to take place during a regular academic term (i.e., not scheduled during study days, final exams, or the breaks between terms). If the student is to graduate in the same term as the thesis defense is held, then the defense should take place at least 30 days prior to the end of the term.
  The thesis defense is an open College seminar in which the student presents the concepts and results of their research. Immediately following the defense, the thesis committee convenes to closely examine the student's research and decide to accept the thesis as provided, accept the thesis with revisions, or not accept the thesis. If the thesis is accepted, a letter grade for CEE 9996 is assigned. If the thesis is accepted with revisions, then the student must submit the revised thesis within 30 days and with the approval of the Thesis Committee. If the thesis is not accepted, but the committee decides to not fail the student, an "R" grade is assigned to CEE 9996. In the following term, the student registers for one credit of ENGR 9991 Directed Research until they are again prepared to attempt the defense. The defense procedures described above are then carried out again in the term that the student is prepared to defend the thesis.

Project Track:
The culminating event for the Project Track is CEE 9995 Project. This entails a one-term research activity done under the supervision of a full-time faculty advisor on an applied engineering topic of interest. Near the end of the term, the student prepares a report of their findings and presents the study in an open departmental seminar. Both the seminar and the written report are used to determine the student's grade for CEE 9995. The grade is determined jointly by the advisor and another designated grader selected by the Graduate Program Director.

Coursework Track:
No culminating event is warranted for the Coursework Track.

Contacts

Program Web Address:

https://www.temple.edu/academics/degree-programs/environmental-engineering-ms-en-enve-msen

Department Information:

Dept. of Civil and Environmental Engineering
ATTN: CEE Programs, College of Engineering
1947 N. 12th Street
Philadelphia, PA 19122-6077
gradengr@temple.edu
215-204-7800

Submission Address for Application Materials:

https://apply.temple.edu/ENGINEERING/Account/Login

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