ENVIRONMENTAL ENGINEERING (CERT)

Graduate Certificate in Environmental Engineering
Unit: Speed School of Engineering (GS) (https://engineering.louisville.edu)
Department: Civil and Environmental Engineering (https://engineering.louisville.edu/academics/departments/civil)
Academic Plan Code(s): ENVECEEGS

Program Information

Students interested in increasing their knowledge of Environmental Engineering can take a series of courses and earn a certificate. The certificate program offers courses in the following disciplines:

- Civil and Environmental Engineering
- Chemistry
- Biology
- Mechanical Engineering
- Chemical Engineering

This is a certificate program, not a degree program. The Graduate Certificate in Environmental Engineering is awarded while completing the graduate degree program (MEng, MS, or PhD) at Speed School of Engineering.

Admission Requirements

Admission to the Speed School of Engineering division of higher studies (MEng) or the graduate school (MS or PhD) in Engineering.

All admission applications for the graduate certificate program shall include the following:

- Application for the Graduate School;
- Application fee;
- Official transcript(s) for all previous post-secondary coursework—all transcripts not in English must be certified as authentic and translated verbatim into English;
- A baccalaureate degree (or equivalent) from an accredited institution or current enrollment in an undergraduate Speed School program.

All students enrolled in a graduate certificate program are expected to make steady and satisfactory progress toward the completion of the certificate. Students who are not enrolled for a period of more than 12 months will be considered to have withdrawn from the certificate program. Students who seek to return after such a period of time must contact the graduate program director.

Certificate Requirements

The following certificate requirements are mandatory for all graduate certificate candidates:

1. The certificate program of study must be completed with a 3.00 GPA or better for all graduate courses used to satisfy certificate requirements while enrolled in the graduate degree program (MEng, MS, or PhD). The student, if eligible, must apply for the certificate prior to graduation.

2. Completion of a graduate degree program at Speed School of Engineering (MEng, MS, or PhD).

3. Graduate certificate students must take all certificate coursework at the University of Louisville. No transfer credits will be accepted toward a graduate certificate.

Program Requirements

Coursework

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Environmental Engineering Electives (500-level, see below) *</td>
<td>0-6</td>
</tr>
<tr>
<td></td>
<td>Environmental Engineering Electives (600-level, see below) *</td>
<td>6-12</td>
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</tbody>
</table>

Minimum Total Hours 12

*Students must complete twelve (12) credit hours, with at least six (6) credit hours at the 600 level. Courses are to be selected from the following lists. All prerequisites must be met. Graduate courses not shown in the lists below require approval from the Certificate Program Director.

Certificate courses do not constitute a degree program, but may be applied toward MEng, MS, or PhD degree requirements.

Other requirements

Completion of a graduate degree program at Speed School of Engineering (MEng, MS, or PhD).

Approved Environmental Engineering Elective Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Approved 500-level Environmental Engineering Electives</td>
<td>0-6</td>
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Students may take up to 6 hours from the following:

- CEE 570  Applied Hydraulics
- CEE 571  Applied Hydrology
- CEE 572  Open Channel Hydraulics
- CEE 573  Groundwater Hydrology
- CHE 509  Environmental Processes and Systems
- CHE 533  Chemical Engineering Safety and Health
- CHE 534  Industrial Waste Management
- CHE 535  Pollution Prevention
- ME 570  Sustainable Energy Systems
- ME 580  Air Pollution Control
- BIOL 522  Aquatic Ecology

Approved 600-level courses:

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<th>Code</th>
<th>Title</th>
<th>Hours</th>
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</table>

Students must take at least 6 hours from the following:

- CEE 670  Advanced Hydraulics
- CEE 673  Advanced Hydrology
- CEE 674  Water Resources Systems
- CEE 675  Surface Water Quality Modeling
- CEE 681  Green Engineering & Sustainable Design
- CEE 694  Special Topics in Civil Engineering (Advanced Environmental Processes & Systems)
- CEE 694  Special Topics in Civil Engineering (Air Quality)
- CEE 694  Special Topics in Civil Engineering (Stream & Wetland Restoration; Wetland Design)
- CHE 620  Transport Phenomena I
- CHE 637  Advanced Stagewise Processes
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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>CHE 638</td>
<td>Advanced Absorption</td>
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<tr>
<td>CHE 650</td>
<td>Membrane Separations</td>
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<tr>
<td>CHE 662</td>
<td>Advanced Process Control</td>
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<tr>
<td>CHE 694</td>
<td>Special Topics in Chemical Engineering</td>
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<tr>
<td>CHEM 622</td>
<td>Analytical Separations</td>
</tr>
<tr>
<td>BIOL 662</td>
<td>Advanced Ecosystems Ecology</td>
</tr>
<tr>
<td>ME 614</td>
<td>Heating, Ventilating, and Air Conditioning</td>
</tr>
<tr>
<td>ME 667</td>
<td>Solar Energy Applications</td>
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</tbody>
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**Total Minimum Hours** 12