GRADUATE CERTIFICATE IN TRANSPORTATION ENGINEERING

The graduate certificate in the field of transportation engineering is particularly appropriate for those who wish to gain specialized knowledge in either intelligent transportation systems and congestion mitigation or transportation safety.

Students who successfully complete the graduate certificate in structural engineering may opt to continue towards a master's degree in the Civil and Environmental Engineering department. All courses completed by the student in the graduate certificate program with a grade of B or better can be transferred to the master's degree program.

Specific admission requirements are shown on the Graduate Program Finder. (http://www.gwu.edu/all-graduate-programs)

Visit the program website (https://www.cee.seas.gwu.edu/transportation-engineering-graduate-certificate-program) for additional program information.

REQUIREMENTS

The following requirements must be fulfilled: 15 credits, including 9 credits in required courses and 6 credits in elective courses in one selected track.

### Intelligent Transportation Systems and Congestion Mitigation Track

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE 6707</td>
<td>Systems Dynamics Modeling and Control</td>
<td></td>
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<tr>
<td>CE 6721</td>
<td>Traffic Engineering and Highway Safety</td>
<td></td>
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<tr>
<td>CE 6722</td>
<td>Intelligent Transportation Systems</td>
<td></td>
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<tr>
<td>CE 6800</td>
<td>Special Topics (Advanced Theory in Traffic Flow)</td>
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<tr>
<td>CE 6800</td>
<td>Special Topics (Advanced Demand Modeling)</td>
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**Required**

Three of the following:

- CE 6707 Systems Dynamics Modeling and Control
- CE 6721 Traffic Engineering and Highway Safety
- CE 6722 Intelligent Transportation Systems
- CE 6800 Special Topics (Advanced Theory in Traffic Flow)
- CE 6800 Special Topics (Advanced Demand Modeling)

**Electives**

Two of the following:

- CE 6101 Numerical Methods in Engineering
- CE 6102 Application of Probability Methods in Civil Engineering
- CE 6210 Introduction to Finite Element Analysis
- CE 8330 Advanced Finite Element Analysis
- CE 8380 Advanced Biomechanics

### Transportation Safety Track

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<th>Code</th>
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</thead>
<tbody>
<tr>
<td>CE 6701</td>
<td>Analytical Mechanics</td>
<td></td>
</tr>
<tr>
<td>CE 8330</td>
<td>Advanced Finite Element Analysis</td>
<td></td>
</tr>
<tr>
<td>CE 8380</td>
<td>Advanced Biomechanics</td>
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</tbody>
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**Required**

Three of the following:

- CE 6350 Introduction to Biomechanics
- CE 6702 Vehicle Dynamics
- CE 6703 Vehicle Standards and Crash Test Analysis
- CE 6704 Crash Investigation and Analysis
- CE 6705 Nonlinear Finite Element Modeling and Simulation
- CE 6707 Systems Dynamics Modeling and Control
- CE 6721 Traffic Engineering and Highway Safety
- CE 6722 Intelligent Transportation Systems