CIVIL ENGINEERING - PROFESSIONAL MASTER OF SCIENCE (MSCVE)

The Department of Civil, Environmental and Architectural Engineering offers a professional master's degree tailored toward working engineers who desire to develop a new skill set. The programs are coursework based and result in a Master of Science degree.

Areas of Emphasis

Water Engineering and Management Emphasis

The goal of the professional master's degree program in civil engineering with an emphasis in water engineering and management (WEM) is to provide working engineers with the skills they need to lead a team, initiative or division in the water profession. It’s especially relevant for young professionals working for consulting engineers, utilities, manufacturers, and government or regulatory agencies.

The program combines technical courses of the environmental engineering MS degree with professional courses that address leadership, management, communication, finance, and governance in the water profession.

The program curriculum is developed and taught by world-class faculty and senior professionals from:

- CU Boulder’s Department of Civil, Environmental and Architectural Engineering;
- CU Denver’s School of Public Affairs;
- water utilities’ executive and senior professionals from across the U.S.;
- consulting firms and global professional organizations;
- American Water Works Association; and
- Water Environment Federation.

For more information, visit the department's Water Engineering & Management (http://www.colorado.edu/ceae/research/interdisciplinary-programs/water-engineering-management) webpage.

Engineering for Developing Communities Emphasis

With a professional master’s degree in civil engineering with an emphasis in engineering for developing communities, students will connect classroom learning and hands-on collaboration with organizations internationally to work towards providing solutions to complex global and local problems. The Mortenson Center in Engineering for Developing Communities (MCEDC) trains engineers to work in partnership with people from developing communities worldwide to create sustainable solutions to meet basic needs.

This program merges the skill sets and knowledge of engineering with international development. We offer our students the opportunity to specialize in an option area of their choice, including: construction, energy, environmental engineering, engineering management, global health, policy, or a self-designed topic.

Our graduates are able to provide technical expertise to development agencies or other firms by recognizing the many facets of community development that are critical to sustainable solutions. Students gain skills in data analysis, project management and systems thinking so they can help create and implement solutions to address the needs of developing communities worldwide.

For more information, visit the Graduate School’s Engineering for Developing Communities (http://www.colorado.edu/graduateschool/masters-programs/engineering-developing-communities) webpage.

Distance Education Option

Students can take individual courses toward a master’s degree or graduate certificate through distance education (online). For more information, connect with the graduate program advisor or visit the Graduate School’s Distance Education (https://www.colorado.edu/graduateschool/distance-education) webpage.

Requirements

Course Requirements

The following course requirements are subject to change; for the most current information, visit the department’s Water Engineering & Management webpage or the Graduate School’s Engineering for Developing Communities webpage.

The professional master’s degree requires a total of 30 credit hours, at least 24 of which must be completed at the 5000 level or above. At least 18 credit hours must be from coursework in CVEN.

Areas of Emphasis

Water Engineering & Management Emphasis

This emphasis requires at least 30 credit hours from the following categories.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVEN 5464</td>
<td>Environmental Engineering Processes</td>
<td>12</td>
</tr>
<tr>
<td>CVEN 5404</td>
<td>Water Chemistry</td>
<td></td>
</tr>
<tr>
<td>CVEN 5484</td>
<td>Applied Microbiology and Toxicology</td>
<td></td>
</tr>
<tr>
<td>One of:</td>
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<td></td>
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<tr>
<td>CVEN 5524</td>
<td>Drinking Water Treatment</td>
<td></td>
</tr>
<tr>
<td>CVEN 5534</td>
<td>Wastewater Treatment</td>
<td></td>
</tr>
<tr>
<td>CVEN 5474</td>
<td>Hazardous and Industrial Waste Management</td>
<td></td>
</tr>
</tbody>
</table>

WEM Core Courses 6-9

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVEN 5564</td>
<td>Water Profession: Communication and Utility Finance</td>
<td></td>
</tr>
<tr>
<td>CVEN 5574</td>
<td>Water Utility Management: Current Issues and Future Challenges</td>
<td></td>
</tr>
<tr>
<td>CVEN 5584</td>
<td>Water Profession: Financial and Management</td>
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</tbody>
</table>

Electives 10-12

- Civil engineering electives (3-9 credits).
- Public affairs (CU Denver) electives (0-3 credits).
- Additional courses to fulfill 30-credit minimum, if necessary.

Master’s Report and Seminar 2

Total Credit Hours 30-35
Engineering for Developing Communities Emphasis
This emphasis requires at least 30 credit hours distributed as follows.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVEN 5919</td>
<td>Sustainable Community Development 1</td>
<td>3</td>
</tr>
<tr>
<td>CVEN 5929</td>
<td>Sustainable Community Development 2</td>
<td>3</td>
</tr>
<tr>
<td>CVEN 5939</td>
<td>Sustainable Community Development Field Practicum</td>
<td>3</td>
</tr>
<tr>
<td>CVEN 5837</td>
<td>Special Topics for Seniors/Grads (Fieldwork Methods for Development Engineers)</td>
<td>3</td>
</tr>
</tbody>
</table>

**Required Competency Areas**
Select one 3-credit course from each competency area: 9

- Data Analysis
- Systems Thinking
- Project Management

**Option Area**
Select 9 credits of elective courses in a coherent topic area, selected in conjunction with the student's faculty advisor.

Possibilities include:

- Energy
- Environmental Health
- Construction
- Engineering Management Certificate
- Policy Issues

Total Credit Hours 30

**Time Limit**
All degree requirements must be completed within four years of the date of commencing coursework.