### Hämeen Ammattikorkeakoulu

**DP in Construction Engineering (BECOUN14A3)**

<table>
<thead>
<tr>
<th>code</th>
<th>name</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>sum</th>
</tr>
</thead>
<tbody>
<tr>
<td>BECON14AYDIN-1000</td>
<td>Ydinosaaminen</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>110</td>
</tr>
<tr>
<td><strong>BECON14ACO01-1000</strong></td>
<td><strong>Orientation to Engineering Studies</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>CO0101</td>
<td>Studying at HAMK</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0102</td>
<td>Occupational Safety</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0103</td>
<td>Project as an Introduction to Construction Engineering</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0104</td>
<td>Calculus</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0105</td>
<td>Finnish</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0106</td>
<td>Viestintä</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0107</td>
<td>English for Engineers</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>BECON14ACO02-1000</strong></td>
<td><strong>Basis of Construction</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>17</td>
</tr>
<tr>
<td>CO0201</td>
<td>Architecture and Construction</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0202</td>
<td>Building Materials</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0203</td>
<td>CAD and BIM</td>
<td>6</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0204</td>
<td>Basics of Physics</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0205</td>
<td>English for Engineers</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0206</td>
<td>Finnish</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0207</td>
<td>Viestintä</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>BECON14ACO03-1000</strong></td>
<td><strong>House Building</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>16</td>
</tr>
<tr>
<td>CO0301</td>
<td>Structures and Basics in Mechanics</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0302</td>
<td>Building Services and Energy Efficiency in Houses</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0303</td>
<td>Completion of a House Project</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0304</td>
<td>Concrete Material Technology</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0305</td>
<td>CAD and BIM</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0306</td>
<td>Basics in Building Chemistry</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0307</td>
<td>English for Engineers</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0308</td>
<td>Finnish</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0309</td>
<td>Viestintä</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>BECON14ACO04-1000</strong></td>
<td><strong>Basics of Civil Engineering</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>17</td>
</tr>
<tr>
<td>CO0401</td>
<td>Geotechnics</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0402</td>
<td>Basics of Civil Engineering</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0403</td>
<td>Basics of Environmental Engineering</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0404</td>
<td>Maps and Calculations</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0405</td>
<td>Geometry and Linear Algebra</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0406</td>
<td>English for Engineers</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Course Title</td>
<td>Credits</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------</td>
<td>--------------------------------------------------</td>
<td>---------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0407</td>
<td>Finnish</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0408</td>
<td>Viestintä</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>BECON14ACO05-1000</strong></td>
<td><strong>Basics of Structural Design</strong></td>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0501</td>
<td>Mechanics and Strength of Materials</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0502</td>
<td>Basis of Structural Design</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0503</td>
<td>Design of Timber and Reinforced Concrete Structures</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0504</td>
<td>Differential and Integral Calculus</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>BECON14AHAR02-1000</strong></td>
<td><strong>Work placement</strong></td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO00BK13</td>
<td>Work Placement 1</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO00BK14</td>
<td>Work Placement 2</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO00BK15</td>
<td>Work Placement 3</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>BECON14APROFILOIVA-1000</strong></td>
<td><strong>PROFILOIVA</strong></td>
<td>218</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>BECON14ACO06-1000</strong></td>
<td><strong>Residential Buildings</strong></td>
<td>17</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0601</td>
<td>Structures of Residential Buildings</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0602</td>
<td>Concrete Works</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0603</td>
<td>BIM</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0604</td>
<td>Management and Cost Estimation</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0605</td>
<td>Foundation Engineering</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0606</td>
<td>Finnish</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RA0206</td>
<td>Tekniinen viestintä</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>BECON14ACO07-1000</strong></td>
<td><strong>Worldwide Environmental Engineering</strong></td>
<td>17</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0701</td>
<td>Global Environmental Problems</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0702</td>
<td>Environmental Health Care</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0703</td>
<td>Microbiology and Environmental Chemistry</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0704</td>
<td>Finnish</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RA0206</td>
<td>Tekniinen viestintä</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>BECON14ACO08-1000</strong></td>
<td><strong>Commercial Buildings</strong></td>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0801</td>
<td>Structures in Commercial Buildings</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0802</td>
<td>Building Services and Energy Efficiency</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0803</td>
<td>Material Properties of Steel and Steel Products</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0804</td>
<td>Basics of Manufacturing and Executing Steel Constructions</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0805</td>
<td>Management and Cost Estimating of Commercial Buildings</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0806</td>
<td>Heat, Moisture, Sound and Fire Regulations</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0905</td>
<td>Differential Equations, Functions of Several Variables, Matrix Calculus</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>BECON14ACO09-1000</strong></td>
<td><strong>Energy in Construction Technology</strong></td>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0901</td>
<td>Renewable Energy</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0902</td>
<td>Energy Economics and Consumption</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
<td>Credits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------------------------</td>
<td>---------</td>
<td>---------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0903</td>
<td>Energy Audit in Practice</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0904</td>
<td>Zero Energy Buildings</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO0905</td>
<td>Differential Equations, Functions of Several Variables, Matrix Calculus</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**BECON14ACO10-1000**  
**Reinforced Concrete Structures**  
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO1001</td>
<td>Design of Reinforced Concrete Structures</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>CO1002</td>
<td>Prefabricated Concrete Structures</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>CO1003</td>
<td>BIM in Design of Concrete Structures</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>CO1004</td>
<td>Mechanics</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>CO1005</td>
<td>Meeting Practices</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

**BECON14ACO11-1000**  
**Waste Management**  
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO1101</td>
<td>Integrated Waste Management System</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>CO1102</td>
<td>Treatment Processes of Municipal Solid Waste</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>CO1103</td>
<td>Reduce, Reuse and Recycle Wastes</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>CO1104</td>
<td>Waste Management Businesses</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>CO1105</td>
<td>Planning Processes, Meeting and Negotiation Situations</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

**BECON14AYDIN-1001**  
**Renovation**  
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO00BK08</td>
<td>Building Physics related to Renovation</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>CO00BK09</td>
<td>Structures and their Damages</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>CO00BK10</td>
<td>BIM in Renovation Design</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>CO00BK11</td>
<td>Healthy Indoor Air</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>CO00BK12</td>
<td>Improvements in Energy Efficiency</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>CO00BM09</td>
<td>Finnish</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

**BECON14APROFILOIVA-1001**  
**Water Supply**  
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO00BJ85</td>
<td>Unit Processes of Water Treatment</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>CO00BJ88</td>
<td>Hydrology and Raw Water Resources</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>CO00BJ89</td>
<td>Structure of a Water Management System</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>CO00BJ93</td>
<td>Planning Processes and Calculations in Water Management</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>CO00BJ94</td>
<td>Legislation Related to Water Supply</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>CO00BM09</td>
<td>Finnish</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

**BECON14APROFILOIVA-1002**  
**Steel Structures 1**  
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RA00BF60</td>
<td>Design of Steel Structures</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>RA00BM25</td>
<td>Fundamentals in Finite Element Analysis</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>RA00BF61</td>
<td>BIM in Design of Steel Structures</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>RA00BF62</td>
<td>Mechanics 2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>CO00BM21</td>
<td>Probability Calculus and Basic Statistical Methods</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>CO00BJ84</td>
<td>Reporting in English</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

**BECON14APROFILOIVA-1003**  
**Waste Water**  
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Credits</th>
</tr>
</thead>
</table>
### Legislation Related to Waste Water Treatment

- **CO00BJ95**: Legislation Related to Waste Water Treatment | 2 | 2
- **CO00BJ86**: Unit Processes of Sewerage System | 3 | 3
- **CO00BJ87**: Waste Water Treatment | 3 | 3
- **CO00BJ96**: Fresh Water Limnology | 1 | 1
- **CO00BJ97**: Ecological Sanitation, Recycling of Nutrients | 3 | 3
- **CO00BJ84**: Reporting in English | 3 | 3

### BECON14APROFILOIVA-1004 Steel Structures 2

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO00BK02</td>
<td>Structural Steel Design 1</td>
<td>5</td>
</tr>
<tr>
<td>CO00BM29</td>
<td>Structural Steel Design 2</td>
<td>4</td>
</tr>
<tr>
<td>CO00BK03</td>
<td>Manufacturing and Executing Steel Structures</td>
<td>5</td>
</tr>
<tr>
<td>CO00BK04</td>
<td>BIM in Design of Steel Structures 2</td>
<td>5</td>
</tr>
</tbody>
</table>

### BECON14ACO13-1000 Monitoring

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RA00BF56</td>
<td>Soil Investigations and Sample Taking</td>
<td>3</td>
</tr>
<tr>
<td>RA00BF58</td>
<td>Remediation Methods of Contaminated Sites</td>
<td>3</td>
</tr>
<tr>
<td>RA00BF59</td>
<td>Planning and Permit Processes of Remediation</td>
<td>3</td>
</tr>
<tr>
<td>TU00BL75</td>
<td>Yrittäjyys - asennetta ja tekemistä</td>
<td>0</td>
</tr>
<tr>
<td>TU00BL76</td>
<td>Yrityksen toiminnan perusteet</td>
<td>0</td>
</tr>
</tbody>
</table>

### BECON14APROFILOIVA-1005 Timber Structures

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO00BJ99</td>
<td>Design of Timber Structures</td>
<td>6</td>
</tr>
<tr>
<td>CO00BK00</td>
<td>BIM in Design of Timber Structures</td>
<td>3</td>
</tr>
<tr>
<td>CO00BK01</td>
<td>Mechanics</td>
<td>6</td>
</tr>
</tbody>
</table>

### BECON14APROFILOIVA-1006 Remediation

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO00BI84</td>
<td>Phases and Participants of a Typical Remediation</td>
<td>2</td>
</tr>
<tr>
<td>CO00BJ09</td>
<td>Legislation about Remediation</td>
<td>2</td>
</tr>
<tr>
<td>CO00BJ10</td>
<td>Environmental Geology</td>
<td>2</td>
</tr>
<tr>
<td>CO00BJ11</td>
<td>Remediation Technologies Concerning Soil, Groundwater, Lakes and Rivers</td>
<td>6</td>
</tr>
</tbody>
</table>

### BECON14A99991206-1000 Professional Skills

- **BECON14A99991206-1000**: Professional Skills | 0
- **BECON14A7777-1000**: Opinnäytetyö | 15
- **BECON14ACO20-1000**: Thesis | 15

### BECON14AYDIN-1000 Ydinosaaminen: 110 op

### BECON14ACO01-1000 Orientation to Engineering Studies: 15 op

**Osaamistavoitteet**

Student masters his or her own studies and behaviour as an individual and as a member of a group.
Masters the way of studying at HAMK
Has an overview of the multinational construction sector and knows its employment opportunities
Is competent in the essential basic structures and vocabulary in Finnish
Is able to communicate and is goal-oriented as a student and as a member of a work community, both one-to-one and in a network
Is able to apply basic mathematical tools in construction engineering problem-solving

CO0101 Studying at HAMK: 2 op

Osaamistavoitteet
Orientation to Engineering Studies, 15 cr

Masters the way of studying at HAMK
Student masters his or her own studies and behaviour as an individual and as a member of a group.
Has an overview of the multinational construction sector and knows its employment opportunities
Is competent in the essential basic structures and vocabulary in Finnish
Is able to communicate and is goal-oriented as a student and as a member of a work community, both one-to-one and in a network
Is able to apply basic mathematical tools in construction engineering problem-solving

CO0102 Occupational Safety: 3 op

Sisältö
This is part of module Orientation to Engineering Studies

CO0103 Project as an Introduction to Construction Engineering: 3 op

Sisältö
This is part of module Orientation to Engineering Studies

CO0104 Calculus: 3 op

Sisältö
This is part of module Orientation to Engineering Studies

CO0105 Finnish: 1 op

Sisältö
This is part of module Orientation to Engineering Studies

CO0106 Viestintä: 1 op

Sisältö
Tämä teema on osa Orientation to Engineering Studies-moduleilla
CO0107 English for Engineers: 2 op

Sisältö
This is part of module Orientation to Engineering Studies

BECON14ACO02-1000 Basis of Construction: 17 op

Osaamistavoitteet
Student has an overview of the basic concepts and courses of action in the construction sector.

• Understands the basic concepts and can read the basic documents of the construction sector
• Can search for information from the established repository and building models (BIM)
• Understands the key physical phenomena concerning constructions
• is able to communicate orally in basic daily situations in Finnish

CO0201 Architecture and Construction: 1 op

Osaamistavoitteet
Basics of Construction, 15 op

CO0202 Building Materials: 2 op

Sisältö
This is part of module Basis of Construction

CO0203 CAD and BIM: 6 op

Sisältö
This is part of module Basis of Construction

CO0204 Basics of Physics: 3 op

Osaamistavoitteet
Basics of Construction, 15 op

Student has an overview of the basic concepts and courses of action in the construction sector.

• Understands the basic concepts and can read the basic documents of the construction sector
• Can search for information from the established repository and building models (BIM)
• Understands the key physical phenomena concerning constructions
• is able to communicate orally in basic daily situations in Finnish

Sisältö
This is part of module Basis of Construction

CO0205 English for Engineers: 1 op
CO0206 Finnish: 2 op

Sisältö
This is part of module Basis of Construction

CO0207 Viestintä: 2 op

Sisältö
Tämä teema on osa Basics of Construction -moduulia

BECON14AC003-1000 House Building: 16 op

Osaamistavoitteet
Student knows the structures and materials used in house buildings and can give reasons for choosing them.

• Is able to apply professional knowledge of construction to structures and building services of small buildings
• Can figure out the course of the small building project and knows the stages of the project
• Can utilize a prepared building model and draw up CAD-documents
• Knows the manufacturing and use of concrete
• Is able to communicate in English in situations related to studies and working life
• Is able to use Finnish language in simple written communication

CO0301 Structures and Basics in Mechanics: 2 op

Osaamistavoitteet
House Building, 15 cr

Student knows the structures and materials used in house buildings and can give reasons for choosing them.

• Is able to apply professional knowledge of construction to structures and building services of small buildings
• Can figure out the course of the small building project and knows the stages of the project
• Can utilize a prepared building model and draw up CAD-documents
• Knows the manufacturing and use of concrete
• Is able to communicate in English in situations related to studies and working life
• Is able to use Finnish language in simple written communication

Sisältö
This is part of module House Building

CO0302 Building Services and Energy Efficiency in Houses: 2 op
CO0303 Completion of a House Project: 2 op
Sisältö
This is part of module House Building

CO0304 Concrete Material Technology: 3 op
Sisältö
This is part of module House Building

CO0305 CAD and BIM: 1 op
Sisältö
This is part of module House Building

CO0306 Basics in Building Chemistry: 2 op
Sisältö
This is part of module House Building

CO0307 English for Engineers: 2 op
Sisältö
This is part of module House Building

CO0308 Finnish: 1 op
Sisältö
This is part of module House Building

CO0309 Viestintä: 1 op
Sisältö
This is part of module House Building

BECON14ACO04-1000 Basics of Civil Engineering: 17 op

Osaamistavoitteet
Student knows the principles of modern civil engineering.

• Knows ground surveying methods and soil classification
• Knows maps, land-use planning and is able to apply different plans
• Understands environmental impacts of construction
• Able to apply plane and space geometry in his or her calculations
• Communicates both orally and in writing in different interactive situations in English
• Able to operate in Finnish society, particularly in situations related to his or her studies

CO0401 Geotechnics: 3 op

Osaamistavoitteet
Basics of Civil Engineering, 15 cr

• Knows ground surveying methods and soil classification
• Knows maps, land-use planning and is able to apply different plans
• Understands environmental impacts of construction
• Able to apply plane and space geometry in his or her calculations
• Communicates both orally and in writing in different interactive situations in English
• Able to operate in Finnish society, particularly in situations related to his or her studies

Sisältö
This is part of module Basics of Civil Engineering

CO0402 Basics of Civil Engineering: 2 op

Sisältö
This is part of module Basics of Civil Engineering

CO0403 Basics of Environmental Engineering: 2 op

Sisältö
This is part of module Basics of Civil Engineering

CO0404 Maps and Calculations: 2 op

CO0405 Geometry and Linear Algebra: 3 op

CO0406 English for Engineers: 1 op

Sisältö
This is part of module Basics of Civil Engineering

CO0407 Finnish: 2 op

Sisältö
This is part of module Basics of Civil Engineering
CO0408 Viestintä: 2 op

Sisältö
Tämä teema on osa Basics of Civil Engineering -moduulia

BECON14ACO05-1000 Basics of Structural Design: 15 op

Osaamistavoitteet
Student is able to design simple structures.

•Masters the basics of mechanics and strength of materials
•Able to design simple load-bearing structures of a house
•Able to apply differential and integral calculus in construction engineering

CO0501 Mechanics and Strength of Materials: 3 op

Osaamistavoitteet
Basics of Structural Design, 15 cr

Student is
- Able to design simple structures.
- Masters the basics of mechanics and strength of materials
- Able to design simple load-bearing structures of a house
- Able to apply differential and integral calculus in construction engineering

CO0502 Basis of Structural Design: 3 op

CO0503 Design of Timber and Reinforced Concrete Structures: 6 op

CO0504 Differential and Integral Calculus: 3 op

BECON14AHAR02-1000 Work placement: 30 op

Osaamistavoitteet
Upon completing this module, a student is both familiar with the working life of their field and is able to apply the theoretical part of their studies in their professional field. Students have been trained to continuously develop themselves and their professional field at work and as entrepreneurs, to find employment after the end of their studies, and to take on international positions in their field.

Student is able to:

Apply acquired knowledge and procedural skills.
Develop themselves and their professional field.
Work effectively in a culturally diverse, international workplace.
Conduct themselves in workplace interactions in a flexible, constructive and goal-oriented manner.
Expertly communicate in an organized, understandable and convincing manner.
CO00BK13 Work Placement 1: 10 op

CO00BK14 Work Placement 2: 10 op

CO00BK15 Work Placement 3: 10 op

BEC014APROFILOIVA-1000 PROFILOIVA: 218 op

BEC014ACO06-1000 Residential Buildings: 17 op

Osaamistavoitteet
Student masters issues of multi-level residential buildings.

• Knows the structures, foundations and structural frames, building services and materials of multi-level residential buildings
• Knows building machinery
• Able to use computer programs in design
• Knows the operations and practices in concrete works
• Able to define cost estimation in different stages of the project
• Has a solid understanding of the structures in Finnish and is familiar with the culture of Finnish working life

CO0601 Structures of Residential Buildings: 2 op

Osaamistavoitteet
Residential Buildings, 15 cr

Student masters issues of multi-level residential buildings.

• Knows the structures, foundations and structural frames, building services and materials of multi-level residential buildings
• Knows building machinery
• Able to use computer programs in design
• Knows the operations and practices in concrete works
• Able to define cost estimation in different stages of the project
• Has a solid understanding of the structures in Finnish and is familiar with the culture of Finnish working life

CO0602 Concrete Works: 2 op

Sisältö
This is part of the module Residential Buildings

CO0603 BIM: 2 op

Sisältö
CO0604 Management and Cost Estimation: 3 op

Sisältö
This is part of the module Residential Buildings

CO0605 Foundation Engineering: 3 op

Sisältö
This is part of the module Residential Buildings

CO0606 Finnish: 3 op

Sisältö
This is part of the modules Residential Buildings and Worldwide Environmental Engineering

RA0206 Tekninen viestintä: 2 op

Sisältö
Tämä teema on osa Rakentamisen perusteet-moduulia (vuodesta 2015 alkaen)

BECON14ACO07-1000 Worldwide Environmental Engineering: 17 op

Osaamistavoitteet
Student masters the main issues of global environmental technology.

• Knows the most serious phenomena affecting our common environment
• Knows the most important health effects of the environment and the methods of assessing them
• Knows the basics of microbiology and environmental chemistry
• Has a solid understanding of the structures in Finnish and is familiar with the culture of Finnish working life

CO0701 Global Environmental Problems: 4 op

Osaamistavoitteet
Worldwide Environmental Engineering, 15 cr

Student masters the main issues of global environmental technology.

• Knows the most serious phenomena affecting our common environment
• Knows the most important health effects of the environment and the methods of assessing them
• Knows the basics of microbiology and environmental chemistry
• Has a solid understanding of the structures in Finnish and is familiar with the culture of Finnish working life
Sisältö
This is part of the module Worldwide Environmental Engineering

CO0702 Environmental Health Care: 3 op

Sisältö
This is part of the module Worldwide Environmental Engineering

CO0703 Microbiology and Environmental Chemistry: 5 op

Sisältö
This is part of the module Worldwide Environmental Engineering

CO0704 Finnish: 3 op

Sisältö
This is part of the module Worldwide Environmental Engineering

RA0206 Tekninen viestintä: 2 op

Sisältö
Tämä teema on osa Rakentamisen perusteet-moduulia (vuodesta 2015 alkaen)

BECON14ACO08-1000 Commercial Buildings: 15 op

Osaamistavoitteet
Student masters issues of commercial and industrial buildings.

• Knows the structures, foundations and structural frames and materials in commercial and industrial buildings
• Knows the building services and facts of energy efficiency
• Knows the material properties of structural steel
• Knows basics of manufacturing and executing steel structures
• Is able to use computer programs in design
• Is able to apply mathematical methods and programs in solving problems concerning construction engineering

CO0801 Structures in Commercial Buildings: 2 op

Osaamistavoitteet
Commercial Buildings, 15 cr

Student
• Knows the structures, foundations and structural frames and materials in commercial and industrial buildings
• Knows the building services and facts of energy efficiency
• Knows the material properties of structural steel
• Knows basics of manufacturing and executing steel structures
• Is able to use computer programs in design
• Is able to apply mathematical methods and programs in solving problems concerning construction engineering

Sisältö
This is part of the module Commercial Buildings

**CO0802 Building Services and Energy Efficiency: 2 op**

Sisältö
This is part of the module Commercial Buildings

**CO0803 Material Properties of Steel and Steel Products: 2 op**

Sisältö
This is part of the module Commercial Buildings

**CO0804 Basics of Manufacturing and Executing Steel Constructions: 2 op**

Sisältö
This is part of the module Commercial Buildings

**CO0805 Management and Cost Estimating of Commercial Buildings: 2 op**

Sisältö
This is part of the module Commercial Buildings

**CO0806 Heat, Moisture, Sound and Fire Regulations: 2 op**

Sisältö
This is part of the module Commercial Buildings

**CO0905 Differential Equations, Functions of Several Variables, Matrix Calculus: 3 op**

Sisältö
This is part of the module Energy in Construction Technology

**BECON14ACO09-1000 Energy in Construction Technology: 15 op**

Osaamistavoitteet
Student realises energy and efficiency as a part of construction technology.
Knows regulations in the energy sector related to construction and buildings
Has the knowledge about energy resources and the importance of renewable energies
Able to implement an energy audit in existing buildings and make a report
Knows the best practices of energy saving in buildings and production
Able to apply mathematical methods and programs in solving problems concerning construction engineering

CO0901 Renewable Energy: 4 op

Osaamistavoitteet
Energy in Construction Technology, 15 cr

Student realises energy and efficiency as a part of construction technology.

CO0902 Energy Economics and Consumption: 3 op

Sisältö
This is part of the module Energy in Construction Technology

CO0903 Energy Audit in Practice: 2 op

Sisältö
This is part of the module Energy in Construction Technology

CO0904 Zero Energy Buildings: 3 op

Sisältö
This is part of the module Energy in Construction Technology

CO0905 Differential Equations, Functions of Several Variables, Matrix Calculus: 3 op

Sisältö
This is part of the module Energy in Construction Technology

BECON14ACO10-1000 Reinforced Concrete Structures: 15 op
**Osaamistavoitteet**
Student is able to design reinforced concrete structures of qualification level A.

• Knows the principles of reinforced concrete structures and is able to design the common structures of qualification level A
• Knows the basics of prefabricated concrete constructions
• Understands the elastic and plastic behaviour of structures
• Able to run a meeting and create necessary documentation

**CO1001 Design of Reinforced Concrete Structures: 3 op**

**Osaamistavoitteet**
Reinforced Concrete Structures, 15 cr

Student is able to design reinforced concrete structures of qualification level A.

• Knows the principles of reinforced concrete structures and is able to design the common structures of qualification level A
• Knows the basics of prefabricated concrete constructions
• Understands the elastic and plastic behaviour of structures
• Able to run a meeting and create necessary documentation

**Sisältö**
This is part of the module Reinforced Concrete Structures

**CO1002 Prefabricated Concrete Structures: 3 op**

**Sisältö**
This is part of the module Reinforced Concrete Structures

**CO1003 BIM in Design of Concrete Structures: 3 op**

**Sisältö**
This is part of the module Reinforced Concrete Structures

**CO1004 Mechanics: 3 op**

**Sisältö**
This is part of the module Reinforced Concrete Structures

**CO1005 Meeting Practices: 3 op**

**Sisältö**
This is part of the module Reinforced Concrete Structures

**BECON14ACO11-1000 Waste Management: 15 op**
Osaamistavoitteet
Student knows the typical integrated waste management system of municipal solid waste and the main treatment methods for waste.

• Capable to participate in waste management planning processes
• Knows the role of different waste treatment methods in the whole waste management system
• Understands the role of national and European Union requirements in waste management
• Knows the role of the public and private sectors in waste management
• Able to conduct a meeting and create the necessary documentation

CO1101 Integrated Waste Management System: 4 op

Osaamistavoitteet
Waste Management, 15 cr

Student knows the typical integrated waste management system of municipal solid waste and the main treatment methods for waste.

• Capable to participate in waste management planning processes
• Knows the role of different waste treatment methods in the whole waste management system
• Understands the role of national and European Union requirements in waste management
• Knows the role of the public and private sectors in waste management
• Able to conduct a meeting and create the necessary documentation

Sisältö
This is part of the module Waste Management@@@@@@

CO1102 Treatment Processes of Municipal Solid Waste: 4 op

Sisältö
This is part of the module Waste Management@@@@@@

CO1103 Reduce, Reuse and Recycle Wastes: 2 op

Sisältö
This is part of the module Waste Management@@@@@@

CO1104 Waste Management Businesses: 2 op

Sisältö
This is part of the module Waste Management@@@@@@

CO1105 Planning Processes, Meeting and Negotiation Situations: 3 op

Sisältö
This is part of the module Waste Management@@@@@@
BECON14AYDIN-1001 Renovation: 17 op

Osaamistavoitteet
Student understands the important concepts of building physics and their influence in energy efficiency and health. Student knows the damaging mechanisms of structures and can choose the appropriate renovation method.

• Knows the structures in different eras and their common damages and means of renovation
• Understands the important concepts of building physics and their significance to high-quality and healthy construction
• Able to design improvements in energy efficiency
• Has an understanding of the essential Finnish vocabulary of the field of study and employment
• Kommunicerar muntligt och skriftligen i växelverkan situationen i svenska språket

CO00BK08 Building Physics related to Renovation: 3 op

Osaamistavoitteet
Renovation, 15 cr

Student understands the important concepts of building physics and their influence in energy efficiency and health. Student knows the damaging mechanisms of structures and can choose the appropriate renovation method.

• Knows the structures in different eras and their common damages and means of renovation
• Understands the important concepts of building physics and their significance to high-quality and healthy construction
• Able to design improvements in energy efficiency

CO00BK09 Structures and their Damages: 3 op

CO00BK10 BIM in Renovation Design: 3 op

CO00BK11 Healthy Indoor Air: 4 op

CO00BK12 Improvements in Energy Efficiency: 2 op

CO00BM09 Finnish: 2 op

BECONF14APROFILOIVA-1001 Water Supply: 17 op

Osaamistavoitteet
Student knows the drinking water standards, how drinking water is produced and distributed to customers.

• Understands the roll of national and European Union standards in drinking water quality
• Capable of participating in typical water treatment planning processes
• Knows the unit processes of water treatment
• Knows the role of the public and private sectors in water management
• Able to apply probability calculus, basic statistical methods in solving problems concerning construction engineering

CO00BJ85 Unit Processes of Water Treatment: 4 op

Osaamistavoitteet
Water Supply, 15 cr

Student knows the drinking water standards, how drinking water is produced and distributed to customers.

• Understands the role of national and European Union standards in drinking water quality
• Capable of participating in typical water treatment planning processes
• Knows the unit processes of water treatment
• Knows the role of the public and private sectors in water management
• Able to apply probability calculus, basic statistical methods in solving problems concerning construction engineering

CO00BJ88 Hydrology and Raw Water Resources: 4 op

CO00BJ89 Structure of a Water Management System: 2 op

CO00BJ93 Planning Processes and Calculations in Water Management: 3 op

CO00BJ94 Legislation Related to Water Supply: 2 op

CO00BM09 Finnish: 2 op

BECON14APROFILOIVA-1002 Steel Structures 1: 15 op

Osaamistavoitteet
Student is able to design steel structures.

• Able to design basic components of steel structures
• Able to apply the finite element method in construction mechanics
• Able to apply matrix calculus in solving problems concerning construction engineering
• Able to report and negotiate in English

RA00BF60 Design of Steel Structures: 3 op

Osaamistavoitteet
Steel Structures 1, 15 cr

Student is able to design steel structures.
• Able to design basic components of steel structures
• Able to apply the finite element method in construction mechanics
• Able to apply matrix calculus in solving problems concerning construction engineering

RA00BM25 Fundamentals in Finite Element Analysis: 3 op

RA00BF61 BIM in Design of Steel Structures: 2 op

RA00BF62 Mechanics 2: 3 op

Osaamistavoitteet
X

CO00BM21 Probability Calculus and Basic Statistical Methods: 1 op

CO00BJ84 Reporting in English: 3 op

BECON14APROFILOIVA-1003 Waste Water: 15 op

Osaamistavoitteet
Student knows the waste water standards, how waste water is collected from customers and treated.
• Understands the role of waste water management
• Knows the unit processes of waste water treatment
• Knows the impacts of waste water in ecosystems
• Able to report and negotiate in English

CO00BJ95 Legislation Related to Waste Water Treatment: 2 op

Osaamistavoitteet
Waste Water, 15 cr

Student knows the waste water standards, how waste water is collected from customers and treated.
• Understands the role of waste water management
• Knows the unit processes of waste water treatment
• Knows the impacts of waste water in ecosystems
• Able to report and negotiate in English

CO00BJ86 Unit Processes of Sewerage System: 3 op

CO00BJ87 Waste Water Treatment: 3 op

CO00BJ96 Fresh Water Limnology: 1 op
CO00BJ97 Ecological Sanitation, Recycling of Nutrients: 3 op

CO00BJ84 Reporting in English: 3 op

BECON14APROFILOIVA-1004 Steel Structures 2: 15 op

Osaamistavoitteet
Student is able to design typical steel frames and envelopes (qualification level A). In addition, he or she knows special issues related to sheet metal, fire design and has deeper knowledge on manufacturing and executing steel constructions.

• Able to analyse and design typical steel frames considering stability of the frame
• Able to design typical joints in steel frames
• Able to design typical sheet metal structures
• Knows the basics of fire design

CO00BK02 Structural Steel Design 1: 5 op

Osaamistavoitteet
Steel Structures 2, 15 cr

Student is able to design typical steel frames and envelopes (qualification level A). In addition, he or she knows special issues related to sheet metal, fire design and has deeper knowledge on manufacturing and executing steel constructions.

• Able to analyse and design typical steel frames considering stability of the frame
• Able to design typical joints in steel frames
• Able to design typical sheet metal structures
• Knows the basics of fire design

CO00BM29 Structural Steel Design 2: 4 op

CO00BK03 Manufacturing and Executing Steel Structures: 3 op

CO00BK04 BIM in Design of Steel Structures 2: 3 op

BECON14ACO13-1000 Monitoring: 15 op

Osaamistavoitteet
Student is able to use the most common methods of field and laboratory analytic.

• Knows main measuring principles of common substances
• Able to take samples and analyse them as a member of a group
• Able to interpret and utilize the results in practice
• Has an understanding of the essential Finnish vocabulary of the field of study and employment
• Kommunicerar muntligt och skriftligen i växelverkan situationen i svenska språket
RA00BF56 Soil Investigations and Sample Taking: 3 op

Osaamistavoitteet
Monitoring (15 cr)

Student is able to use the most common methods of field and laboratory analytic.

• Knows main measuring principles of common substances
• Able to take samples and analyse them as a member of a group
• Able to interpret and utilize the results in practice

RA00BF58 Remediation Methods of Contaminated Sites: 3 op

RA00BF59 Planning and Permit Processes of Remediation Projects: 3 op

TU00BL75 Yrittäjyys - asennetta ja tekemistä: 3 op

Osaamistavoitteet

Opiskelija osaa
• etsiä, tunnistaa ja arvioida liiketoimintamahdollisuuksia
• luoda liikeideoita ja arvioida niiden kiinnostavuutta
• toimia yritteliäisti
• arvioi liikeidean taloudellisia ulottuvuuksia
• esittää ja myydä ideaan eri kohderyhmiille

TU00BL76 Yrityksen toiminnan perusteet: 3 op

Osaamistavoitteet
Yrityksen liiketoiminta koostuu yrittäjätiimistä, tuotteista ja palveluista, markkinoista ja asiakkaista, voimavaroista, toimintaympäristöstä ja niiden yhteen sovittaminen tapahtuu erilaisissa liiketoiminnan suunnitteluun, toteutukseen, arvioinnin ja kehittämisen prosessissa. Liiketoiminnan kehittäminen on analyyttistä valmistautumista yrityksen liiketoiminnan käynnistämiseen ja kasvattamiseen.

Opiskelija osaa
• tunnistaa yrityksen toiminnon ja liiketoiminnan toimintaympäristön markkinoiden, toimialan, trendien ja makrotalouden osalta
• osaa analysoida yrityksen liiketoimintaympäristön vaikutukset liiketoimintaan
• suunnitella ja arvioi kannattavan yrityksen liiketoimintaa ja sen edellytyksiä
• valita asiaankuuluvan yhtiömuodon
• osaa perustaa omalle toimialalleen yrityksen liiketoiminnan
BECON14APROFILOIVA-1005 Timber Structures: 15 op

Osaamistavoitteet
Student is able to design timber structures in qualification level A.

• Knows the material properties of timber and timber products and is able to design the common structures in qualification level A
• Understands the meaning of stability and vibration

CO00BJ99 Design of Timber Structures: 6 op

Osaamistavoitteet
Timber Structures, 15 cr

Student is able to design timber structures in qualification level A.

• Knows the material properties of timber and timber products and is able to design the common structures in qualification level A
• Understands the meaning of stability and vibration

CO00BK00 BIM in Design of Timber Structures: 3 op

CO00BK01 Mechanics: 6 op

BECON14APROFILOIVA-1006 Remediation: 15 op

Osaamistavoitteet
Student understands the process of environmental remediation.

• Capable of participating in the remediation planning process and to supervising different remediation projects
• Has the knowledge and understanding of different methods of remediation
• Able to use all associated documents for remediation processes

CO00BI84 Phases and Participants of a Typical Remediation Project: 2 op

Osaamistavoitteet
Remediation, 15 cr

Student understands the process of environmental remediation.

• Capable of participating in the remediation planning process and to supervising different remediation projects
• Has the knowledge and understanding of different methods of remediation
• Able to use all associated documents for remediation processes
CO00BJ09 Legislation about Remediation: 2 op

CO00BJ10 Environmental Geology: 5 op

CO00BJ11 Remediation Technologies Concerning Soil, Groundwater, Lakes and Rivers: 6 op

BECON14A99991206-1000 Professional Skills: 0 op

BECON14A7777-1000 Opinnäytetyö: 15 op

BECON14ACO20-1000 Thesis: 15 op

99991203 Final Thesis: 15 op