## Double Degree in Engineering and Economics

B.Eng (Hons) in Chemical & Biomolecular Engineering and BSocSci (Hons) in Economics

AY2022 - 2023 Intake onwards

*with Professional Internship*

<table>
<thead>
<tr>
<th>Programme</th>
<th>Year of Study</th>
<th>Number of Academic Units (AUs)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Major Requirement</td>
<td>Interdisciplinary Collaborative Core</td>
</tr>
<tr>
<td></td>
<td>Core (C) Major PE (MPE)</td>
<td>Common Core (CC) Foundational Core (FC)</td>
</tr>
</tbody>
</table>

### Double Degree in Chemical & Biomolecular Engineering and Economics (PI)

<table>
<thead>
<tr>
<th>Year</th>
<th>Major Requirement</th>
<th>Interdisciplinary Collaborative Core</th>
<th>Broadening and Deepening Electives</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>36/37*</td>
<td>9</td>
<td>3</td>
<td>45/46*</td>
</tr>
<tr>
<td>2</td>
<td>34</td>
<td>8</td>
<td>3</td>
<td>45</td>
</tr>
<tr>
<td>3</td>
<td>20</td>
<td>22</td>
<td>12</td>
<td>36</td>
</tr>
<tr>
<td>4</td>
<td>14</td>
<td>14</td>
<td>3</td>
<td>17</td>
</tr>
<tr>
<td>5</td>
<td>104/105*</td>
<td>17</td>
<td>15</td>
<td>175/176*</td>
</tr>
</tbody>
</table>

### Individual Degree Requirements

#### Chemical & Biomolecular Engineering (PI)

<table>
<thead>
<tr>
<th>Year</th>
<th>Major Requirement</th>
<th>Interdisciplinary Collaborative Core</th>
<th>Broadening and Deepening Electives</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>24/25*</td>
<td>9</td>
<td>3</td>
<td>136/137*</td>
</tr>
<tr>
<td>2</td>
<td>28</td>
<td>8</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>17</td>
<td>6</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>77/78*</td>
<td>17</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

#### Economics

<table>
<thead>
<tr>
<th>Year</th>
<th>Major Requirement</th>
<th>Interdisciplinary Collaborative Core</th>
<th>Broadening and Deepening Electives</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>12</td>
<td>9</td>
<td>3</td>
<td>30</td>
</tr>
<tr>
<td>2</td>
<td>6</td>
<td>8</td>
<td>12</td>
<td>127</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>14</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>14</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td>30</td>
<td>17</td>
<td>127</td>
</tr>
<tr>
<td>Category</td>
<td>Course Description</td>
<td>AU</td>
<td>Total AU</td>
<td></td>
</tr>
<tr>
<td>--------------------------------</td>
<td>---------------------------------------------------------------------------------</td>
<td>----</td>
<td>----------</td>
<td></td>
</tr>
<tr>
<td>Interdisciplinary Collaborative Core (ICC)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Core (University-level)</td>
<td>CC0001 Inquiry and Communication in the Interdisciplinary World</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CC0002 Navigating the Digital World</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CC0003 Ethics &amp; Civics in a Multi-Cultural World</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CC0005 Healthy Living &amp; Wellbeing</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CC0006 Sustainability: Society, Economy &amp; Environment</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CC0007 Science &amp; Technology for Humanity</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ML0004 Career and Entrepreneurial Development for the Future World</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foundational Core (College-level)</td>
<td>HW0288 Engineering Communication</td>
<td>2</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CB0494 Introduction to Data Science and Artificial Intelligence</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CH3880 Professional Internship</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBE Core (C)</td>
<td>EG1001 Engineers In Society</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MH1810 Math 1</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PH1011* Physics</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CB1102 Introduction to Chemical and Biomedical Engineering</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CB1103 Organic Chemistry For Engineers</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CB1117 Engineering Mathematics</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CB1131 Introduction to Biomolecular Engineering</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CH1104 Materials &amp; Energy Balance</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CH1801 Chemical &amp; Biomolecular Engineering Laboratory 1A</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CH1802 Chemical &amp; Biomolecular Engineering Laboratory 2</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CH2010 Engineering Statistics</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CH2103 Fluid Systems</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CH2107 Introduction to Computational Thinking</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CH2108 Thermodynamics</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CH2112 Chemical Reaction Engineering</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

B.Eng (Hons) in Chemical & Biomolecular Engineering and BSocSci (Hons) in Economics
<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH2114</td>
<td>Heat &amp; Mass Transfer in Chemical and Biological Systems</td>
<td>3</td>
</tr>
<tr>
<td>CH2123</td>
<td>Chemical Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>CH2151</td>
<td>Unit Operations: Fluid-Solid Separation</td>
<td>3</td>
</tr>
<tr>
<td>CH2801</td>
<td>Chemical &amp; Biomolecular Engineering Laboratory 2A</td>
<td>2</td>
</tr>
<tr>
<td>CH2802</td>
<td>Chemical &amp; Biomolecular Engineering Laboratory 2B</td>
<td>2</td>
</tr>
<tr>
<td>CH3104</td>
<td>Biochemical Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CH3109</td>
<td>Decision Tools for Business &amp; Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CH3111</td>
<td>Process Control and Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>CH3121</td>
<td>Chemical, Biological &amp; Plant Safety</td>
<td>2</td>
</tr>
<tr>
<td>CH3140</td>
<td>Unit Operations: Fluid-Fluid Separation</td>
<td>3</td>
</tr>
<tr>
<td>CH3802</td>
<td>Chemical &amp; Biomolecular Engineering Laboratory 5</td>
<td>3</td>
</tr>
<tr>
<td>CH4801</td>
<td>Final Year Design Project</td>
<td>8</td>
</tr>
</tbody>
</table>

### Econs Core (C)

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>HE1001</td>
<td>Microeconomics I</td>
<td>3</td>
</tr>
<tr>
<td>HE1002</td>
<td>Macroeconomics I</td>
<td>3</td>
</tr>
<tr>
<td>HE2001</td>
<td>Microeconomics II</td>
<td>3</td>
</tr>
<tr>
<td>HE2002</td>
<td>Macroeconomics II</td>
<td>3</td>
</tr>
<tr>
<td>HE2003</td>
<td>Econometrics I</td>
<td>3</td>
</tr>
<tr>
<td>HE3001</td>
<td>Microeconomics III</td>
<td>3</td>
</tr>
<tr>
<td>HE3002</td>
<td>Macroeconomics III</td>
<td>3</td>
</tr>
<tr>
<td>HE3003</td>
<td>Econometrics II</td>
<td>3</td>
</tr>
<tr>
<td>MH1820</td>
<td>Introduction to Probability and Statistical Methods</td>
<td>3</td>
</tr>
</tbody>
</table>

### Major Prescribe Electives (MPE)

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBE</td>
<td>Major Prescribed Electives (2 courses)</td>
<td>6</td>
</tr>
<tr>
<td>Econs</td>
<td>Level 3xxx (6 courses)</td>
<td>18</td>
</tr>
<tr>
<td>Econs</td>
<td>Level 4xxx (3 courses)</td>
<td>12</td>
</tr>
</tbody>
</table>

### Broadening and Deepening Electives (BDE)

- **Total Units:** 175/176

*Students without 'A' Level Physics will take 'PH1012 Physics A' (4AU).
<table>
<thead>
<tr>
<th>Year 1 Semester 1</th>
<th>Course Type</th>
<th>Course</th>
<th>AU</th>
</tr>
</thead>
<tbody>
<tr>
<td>CB1102</td>
<td>Introduction to Chemical and Biomedical Engineering</td>
<td>C</td>
<td>1</td>
</tr>
<tr>
<td>CB1131</td>
<td>Introduction to Biomedical Engineering</td>
<td>C</td>
<td>3</td>
</tr>
<tr>
<td>CH1801</td>
<td>Chemical &amp; Biomedical Engineering Laboratory 1A</td>
<td>C</td>
<td>1</td>
</tr>
<tr>
<td>MH1810</td>
<td>Math 1</td>
<td>C</td>
<td>3</td>
</tr>
<tr>
<td>PH1011</td>
<td>Physics</td>
<td>C</td>
<td>3</td>
</tr>
<tr>
<td>PH1012</td>
<td>Physics A (* For students without 'A' Level Physics)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>CC0001</td>
<td>Inquiry and Communication in the Interdisciplinary World</td>
<td>CC</td>
<td>2</td>
</tr>
<tr>
<td>CC0002</td>
<td>Navigating the Digital World</td>
<td>CC</td>
<td>2</td>
</tr>
<tr>
<td>HE1001</td>
<td>Macroeconomics I</td>
<td>C</td>
<td>3</td>
</tr>
<tr>
<td>HE1002</td>
<td>Macroeconomics II</td>
<td>C</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 1 Semester 2</th>
<th>Course Type</th>
<th>Course</th>
<th>AU</th>
</tr>
</thead>
<tbody>
<tr>
<td>CB1103</td>
<td>Organic Chemistry For Engineers</td>
<td>C</td>
<td>3</td>
</tr>
<tr>
<td>CB1117</td>
<td>Engineering Mathematics</td>
<td>C</td>
<td>4</td>
</tr>
<tr>
<td>CH1104</td>
<td>Materials &amp; Energy Balance</td>
<td>C</td>
<td>3</td>
</tr>
<tr>
<td>CH1802</td>
<td>Chemical &amp; Biomedical Engineering Laboratory 2</td>
<td>C</td>
<td>1</td>
</tr>
<tr>
<td>EG1001</td>
<td>Engineers in Society</td>
<td>C</td>
<td>2</td>
</tr>
<tr>
<td>CC0003</td>
<td>Ethics &amp; Civics in a Multi-Cultural World</td>
<td>CC</td>
<td>2</td>
</tr>
<tr>
<td>CC0005</td>
<td>Healthy Living &amp; Wellbeing</td>
<td>CC</td>
<td>3</td>
</tr>
<tr>
<td>HE2001</td>
<td>Microeconomics II</td>
<td>C</td>
<td>3</td>
</tr>
<tr>
<td>HE2002</td>
<td>Macroeconomics II</td>
<td>C</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 2 Semester 1</th>
<th>Course Type</th>
<th>Course</th>
<th>AU</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH2103</td>
<td>Fluid Systems</td>
<td>C</td>
<td>3</td>
</tr>
<tr>
<td>CH2107</td>
<td>Introduction to Computational Thinking</td>
<td>C</td>
<td>3</td>
</tr>
<tr>
<td>CH2108</td>
<td>Thermodynamics</td>
<td>C</td>
<td>3</td>
</tr>
<tr>
<td>CH2010</td>
<td>Engineering Statistics</td>
<td>C</td>
<td>3</td>
</tr>
<tr>
<td>CH2801</td>
<td>Chemical &amp; Biomedical Engineering Laboratory 2A</td>
<td>C</td>
<td>2</td>
</tr>
<tr>
<td>CC0006</td>
<td>Sustainability: Society, Economy &amp; Environment</td>
<td>CC</td>
<td>3</td>
</tr>
<tr>
<td>ML0004</td>
<td>Career and Entrepreneurial Development for the Future World</td>
<td>CC</td>
<td>2</td>
</tr>
<tr>
<td>HE3001</td>
<td>Microeconomics III</td>
<td>C</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 2 Semester 2</th>
<th>Course Type</th>
<th>Course</th>
<th>AU</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH2112</td>
<td>Chemical Reaction Engineering</td>
<td>C</td>
<td>3</td>
</tr>
<tr>
<td>CH2114</td>
<td>Heat &amp; Mass Transfer in Chemical and Biological Systems</td>
<td>C</td>
<td>3</td>
</tr>
<tr>
<td>CH2123</td>
<td>Chemical Thermodynamics</td>
<td>C</td>
<td>3</td>
</tr>
<tr>
<td>CH2151</td>
<td>Unit Operations: Fluid-Solid Separation</td>
<td>C</td>
<td>3</td>
</tr>
<tr>
<td>CH2802</td>
<td>Chemical &amp; Biomedical Engineering Laboratory 2B</td>
<td>C</td>
<td>2</td>
</tr>
<tr>
<td>CC0007</td>
<td>Science &amp; Technology for Humanity</td>
<td>CC</td>
<td>3</td>
</tr>
<tr>
<td>CB0404</td>
<td>Introduction to Data Science and Artificial Intelligence</td>
<td>FC</td>
<td>3</td>
</tr>
<tr>
<td>MH1820</td>
<td>Introduction to Probability and Statistical Methods</td>
<td>C</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 3 Semester 1</th>
<th>Course Type</th>
<th>Course</th>
<th>AU</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH3104</td>
<td>Biochemical Engineering</td>
<td>C</td>
<td>3</td>
</tr>
<tr>
<td>CH3109</td>
<td>Decision Tools for Business &amp; Engineering</td>
<td>C</td>
<td>3</td>
</tr>
<tr>
<td>CH3111</td>
<td>Process Control and Dynamics</td>
<td>C</td>
<td>3</td>
</tr>
<tr>
<td>CH3121</td>
<td>Chemical, Biological &amp; Plant Safety</td>
<td>C</td>
<td>2</td>
</tr>
<tr>
<td>CH3140</td>
<td>Unit Operations: Fluid-Fluid Separation</td>
<td>C</td>
<td>3</td>
</tr>
<tr>
<td>CH3802</td>
<td>Chemical &amp; Biomedical Engineering Laboratory 5</td>
<td>C</td>
<td>3</td>
</tr>
<tr>
<td>HW0288</td>
<td>Engineering Communication</td>
<td>FC</td>
<td>2</td>
</tr>
<tr>
<td>HE3002</td>
<td>Macroeconomics III</td>
<td>C</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 3 Semester 2</th>
<th>Course Type</th>
<th>Course</th>
<th>AU</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH3880</td>
<td>Professional Internship</td>
<td>FC</td>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 4 Semester 1</th>
<th>Course Type</th>
<th>Course</th>
<th>AU</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH4801</td>
<td>Final Year Design Project</td>
<td>C</td>
<td>4</td>
</tr>
<tr>
<td>HE2003</td>
<td>Econometrics I</td>
<td>C</td>
<td>3</td>
</tr>
<tr>
<td>Econ PE3XXX 1</td>
<td>MPE</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Econ PE3XXX 3</td>
<td>MPE</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Econ PE4XXX 1</td>
<td>MPE</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Econ PE4XXX 3</td>
<td>MPE</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 4 Semester 2</th>
<th>Course Type</th>
<th>Course</th>
<th>AU</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH4801</td>
<td>Final Year Design Project</td>
<td>C</td>
<td>4</td>
</tr>
<tr>
<td>HE3003</td>
<td>Econometrics II</td>
<td>C</td>
<td>3</td>
</tr>
<tr>
<td>Econ PE3XXX 4</td>
<td>MPE</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Econ PE4XXX 1</td>
<td>MPE</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 5 Semester 1</th>
<th>Course Type</th>
<th>Course</th>
<th>AU</th>
</tr>
</thead>
<tbody>
<tr>
<td>BDE 1</td>
<td>BDE</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Econ PE3XXX 5</td>
<td>MPE</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Econ PE3XXX 6</td>
<td>MPE</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Econ PE4XXX 2</td>
<td>MPE</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Econ PE4XXX 3</td>
<td>MPE</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 5 Semester 2</th>
<th>Course Type</th>
<th>Course</th>
<th>AU</th>
</tr>
</thead>
<tbody>
<tr>
<td>BDE 1</td>
<td>BDE</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Econ PE3XXX 5</td>
<td>MPE</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Econ PE3XXX 6</td>
<td>MPE</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Econ PE4XXX 2</td>
<td>MPE</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Econ PE4XXX 3</td>
<td>MPE</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

*Students without 'A' Level Physics will take 'PH1012 Physics A' (4AU).