Mining Engineering

Note: This guide is only available to students who are enrolled in the Mining Engineering program within the Bachelor of Engineering component of the Bachelor of Computer Science and Bachelor of Engineering (61160) combined degree course prior to 2012.

Course details

Course Credit Points:
Bachelor of Engineering component - 168 points
Bachelor of Computer Science component - 72 points
Total required for this course - 240 points

Students must complete the following (as set out below):

A. Bachelor of Computer Science component:
   - Computer Science core units in Table 6.2.5a - 36 points
   - The requirements for completion of one of the following majors:
     i. Systems (by completing the remaining units from Table 6.2.3d) - 24 points;
     ii. Web Technologies (by completing the remaining units from Table 6.2.3e) - 18 points; or
     iii. Computation (by completing the remaining units from Table 6.2.3g) - 24 points
   - Units to make up the remaining required points from Table 6.2.5b (Bachelor of Computer Science Level 2 options) - 12 or 18 points.
   - Students enrolled in the Entertainment Technologies and Software Management should refer to the 2010 rules for these majors.

B. Bachelor of Engineering component:
   - Bachelor of Engineering foundation core units - 36 points;
   - all units in Table 6.2.2Ka (Mining Engineering core units) - 114 points;
   - three units from Group A in Table 6.2.2Kb (Mining Engineering options) - 18 points;
   - a professional practicum, of at least 16 weeks.

The following table is intended as a guide only. All units have a value of 6 points unless noted otherwise. Unit availability may be subject to change. For the most up-to-date information, please consult the Timetable at http://www.timetable.uwa.edu.au/
### Bachelor of Computer Science and Bachelor of Engineering
#### Semester One

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH1010</td>
<td>Calculus and Linear Algebra</td>
<td>(no longer offered)</td>
</tr>
<tr>
<td>PHYS1001</td>
<td>Physics for Scientists and Engineers</td>
<td>(replaces PHYS1101 Advanced Physics A)</td>
</tr>
<tr>
<td>GENG1001</td>
<td>Introduction to Engineering Mechanics</td>
<td>(Note 1)</td>
</tr>
<tr>
<td>CITS1001</td>
<td>Object-oriented Programming and Software Eng.</td>
<td>(replaces CITS1200 Java Programming)</td>
</tr>
</tbody>
</table>

#### Semester Two

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH1020</td>
<td>Calculus, Statistics and Probability</td>
<td>(no longer offered)</td>
</tr>
<tr>
<td>GEN1002</td>
<td>Introduction to Electrical and Electronic Engineering</td>
<td>(Note 2)</td>
</tr>
<tr>
<td>BE Group A option</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CITS2002</td>
<td>Programming and Systems</td>
<td>(replaces CITS1002 Programming and Systems or CITS1210 C Prog.)</td>
</tr>
</tbody>
</table>

#### Year One

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS1001</td>
<td>Physics for Scientists and Engineers</td>
<td>(replaces PHYS1101 Advanced Physics A)</td>
</tr>
<tr>
<td>GENG1001</td>
<td>Introduction to Engineering Mechanics</td>
<td>(Note 1)</td>
</tr>
<tr>
<td>CITS1001</td>
<td>Object-oriented Programming and Software Eng.</td>
<td>(replaces CITS1200 Java Programming)</td>
</tr>
</tbody>
</table>

#### Year Two

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>CITS1401</td>
<td>Problem Solving and Programming</td>
<td></td>
</tr>
<tr>
<td>CITS2200</td>
<td>Data Structures and Algorithms</td>
<td></td>
</tr>
<tr>
<td>BE Group A option</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH2040</td>
<td>Engineering Mathematics</td>
<td>(Note 3)</td>
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</table>

#### Year Three

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>ENSC1001</td>
<td>Global Challenges in Engineering</td>
<td>(replaces ENSC1001 Engineering Challenges in a Global World or GEN1003 Introduction to Professional Engineering)</td>
</tr>
<tr>
<td>ENSC3004</td>
<td>Solid Mechanics</td>
<td>(replaces CIVL2110 Statics and Solid Mechanics)</td>
</tr>
<tr>
<td>ENSC3009</td>
<td>Geomechanics</td>
<td>(replaces CIVL2122 Geomechanics)</td>
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<tr>
<td>Computer Science Major unit</td>
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</table>

#### Year Four

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIVL2150</td>
<td>Surveying and CAD</td>
<td>(no longer offered, contact the ECM Student Office if required)</td>
</tr>
<tr>
<td>MINE4401</td>
<td>Underground Mining 1</td>
<td>(replaces MINE3162 Underground Mining 2)</td>
</tr>
<tr>
<td>MINE4405</td>
<td>Mineral Resources</td>
<td>(replaces EART3351 Mineral Resources)</td>
</tr>
<tr>
<td>BE Group A option</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Year Five

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MINE4111</td>
<td>Mining Engineering Project Part 1</td>
<td></td>
</tr>
<tr>
<td>MINE4161</td>
<td>Mine Design</td>
<td>(Note 5)</td>
</tr>
<tr>
<td>MINE4406</td>
<td>Geotechnology of Mine Waste</td>
<td>(replaces MINE4166 Geotechnological Waste Management)</td>
</tr>
<tr>
<td>Computer Science Major unit</td>
<td>(if required), otherwise any level two or higher computing unit</td>
<td></td>
</tr>
</tbody>
</table>

#### Notes

- **Note 1:** Students requiring GEN1001 must complete ENSC2001 Motion and ENSC1002 Materials Behaviour from Atoms to Bridges.
- **Note 2:** No longer offered, completed ENSC2002 Energy if required.
- **Note 3:** Students requiring MATH2040 must complete MATH1002 Mathematical Methods 2.
- **Note 4:** Students missing CIVL2122 must complete ENSC3009 and student missing CIVL2121 should complete a unit from Group A in Table 6.2.2Kb. Any student requiring both CIVL2121 and CIVL2122 must complete ENSC3009 and a unit from Group A in Table 6.2.2Kb.
- **Note 5:** Students requiring both MINE3161 and MINE4161 must complete ENSC3011 and MINE5503. Students who have completed MINE3161 (or MINE5503) but missing MINE4161 should enrol in MINE5551 Mining Engineering Design Project 1 available in semester two. Any student missing MINE4161 but completed ENSC3011 should do MINE5503 Surface Mining.
- **Note 6:** Offered in Non-standard teaching period. Refer to Handbook or contact the unit coordinator for specific unit details.
Bachelor of Computer Science component

Table 6.2.5a—Bachelor of Computer Science core units

<table>
<thead>
<tr>
<th>Semester</th>
<th>Unit Code</th>
<th>Unit Title (Replacements)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>CITS1001</td>
<td>Object-oriented Programming and Software Engineering</td>
</tr>
<tr>
<td>S1</td>
<td>CITS1401</td>
<td>Problem Solving and Programming</td>
</tr>
<tr>
<td>S2</td>
<td>CITS1402</td>
<td>Relational Database Management Systems</td>
</tr>
<tr>
<td>S2</td>
<td>CITS2002</td>
<td>Programming and Systems</td>
</tr>
<tr>
<td>S1</td>
<td>CITS2200</td>
<td>Data Structures and Algorithms</td>
</tr>
<tr>
<td>S2</td>
<td>CITS3200</td>
<td>Professional Computing</td>
</tr>
</tbody>
</table>

Table 6.2.5b—Bachelor of Computer Science Level 2 options

<table>
<thead>
<tr>
<th>Semester</th>
<th>Unit Code</th>
<th>Unit Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>S2</td>
<td>CITS2211</td>
<td>Discrete Structures</td>
</tr>
<tr>
<td>S1, S2</td>
<td>CITS2401</td>
<td>Computer Analysis and Visualisation</td>
</tr>
</tbody>
</table>

Majors

- **Systems major (MJ-SYSTM)**

  The specific requirements for the Systems major are all units below (Systems major core units) — 48 points.

<table>
<thead>
<tr>
<th>Semester</th>
<th>Unit Code</th>
<th>Unit Title (Replacements)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>CITS1001</td>
<td>Object-oriented Programming and Software Engineering</td>
</tr>
<tr>
<td>S2</td>
<td>CITS1402</td>
<td>Relational Database Management Systems</td>
</tr>
<tr>
<td>S2</td>
<td>CITS2002</td>
<td>Programming and Systems</td>
</tr>
<tr>
<td>S1</td>
<td>CITS2200</td>
<td>Data Structures and Algorithms</td>
</tr>
<tr>
<td>S1</td>
<td>CITS3002</td>
<td>Networks and Security (must not be taken with CITS3230 Computer Networks or CITS3231 Security &amp; Privacy)</td>
</tr>
<tr>
<td>S2</td>
<td>CITS3200</td>
<td>Professional Computing</td>
</tr>
<tr>
<td>S1</td>
<td>CITS3401</td>
<td>Data Warehousing and Data Mining (replaces CITS3401 Data Exploration and Mining or CITS4243 Advanced Databases)</td>
</tr>
</tbody>
</table>

  and any Level 3 or Level 4 unit offered by the School of Computer Science and Software Engineering

\(^1\) Must complete at least four Level 3 or Level 4 units to satisfy this major.
**Web Technologies major (MJ-TCHWB)**

The specific requirements for the Web Technologies major are all units below (Web Technologies major core units) — 42 points.

<table>
<thead>
<tr>
<th>Semester</th>
<th>Unit Code</th>
<th>Unit Title</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>CITS1001</td>
<td>Object-oriented Programming and Software Engineering</td>
<td>(replacing CITS1200 Java Programming or CITS1220 Software Engineering)</td>
</tr>
<tr>
<td>S2</td>
<td>CITS1402</td>
<td>Relational Database Management Systems</td>
<td>(replaces CITS1402 Introduction to Databases or CITS2232 Databases)</td>
</tr>
<tr>
<td>S1</td>
<td>CITS2200</td>
<td>Data Structures and Algorithms</td>
<td></td>
</tr>
<tr>
<td>S2</td>
<td>CITS3200</td>
<td>Professional Computing</td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td>CITS3201</td>
<td>Human–Computer Interaction</td>
<td>(unit no longer offered, students requiring this may take CITS3231 Security and Privacy or CITS3003 Graphics and Animation as replacement)</td>
</tr>
<tr>
<td>S1</td>
<td>CITS3401</td>
<td>Data Warehousing and Data Mining</td>
<td>(replaces CITS3401 Data Exploration and Mining or CITS4243 Advanced Databases)</td>
</tr>
<tr>
<td>S1</td>
<td>CITS3403</td>
<td>Agile Web Development</td>
<td>(replaces CITS3403 Web and Internet Technologies or CITS4230 Internet Technologies)</td>
</tr>
</tbody>
</table>

**Entertainment Technologies major (MJ-TCHET)**

This major is only available to re-enrolling students who should refer to the 2010 rules for the major.

**Computation major (MJ-COMPT)**

The specific requirements for the Computation major are all units below (Computation major core units) — 42 points.

<table>
<thead>
<tr>
<th>Semester</th>
<th>Unit Code</th>
<th>Unit Title</th>
<th>Notes</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>CITS1001</td>
<td>Object-oriented Programming and Software Engineering</td>
<td>(replacing CITS1200 Java Programming or CITS1220 Software Engineering)</td>
<td></td>
</tr>
<tr>
<td>S1</td>
<td>CITS2200</td>
<td>Data Structures and Algorithms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S2</td>
<td>CITS2211</td>
<td>Discrete Structures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S2</td>
<td>CITS3200</td>
<td>Professional Computing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S1</td>
<td>CITS3001</td>
<td>Algorithms, Agents and Artificial Intelligence</td>
<td>(can be taken with CITS3210 Algorithms, but not CITS4211 Artificial Intelligence.)</td>
<td></td>
</tr>
<tr>
<td>S2</td>
<td>CITS3402</td>
<td>High Performance Computing</td>
<td>(substitute for CITS3242 Programming Paradigms)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>and</td>
<td>any Level 3 or Level 4 unit offered by the School of Computer Science and Software Engineering</td>
<td></td>
</tr>
</tbody>
</table>

1 Must have at least four Level 3 or Level 4 units to satisfy this major.

**Software Management major (MJ-SFTMT)**

This major is only available to re-enrolling students who should refer to the 2010 rules for the major.
Bachelor of Engineering component

GROUP A – Table 6.2.2Kb (Mining Engineering options)

<table>
<thead>
<tr>
<th>Semester</th>
<th>Unit Code</th>
<th>Unit Title及</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1, S2</td>
<td>ACCT1101</td>
<td>Financial Accounting</td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td>ACCT1112</td>
<td>Management Accounting</td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td>CHPR4432</td>
<td>Special Topics in Mineral Processing</td>
<td>(no longer offered)</td>
</tr>
<tr>
<td>S1</td>
<td>CITS1001</td>
<td>Object-Oriented Programming and Software Engineering</td>
<td>(replaces CITS1200 Java Programming)</td>
</tr>
<tr>
<td>S2</td>
<td>CITS2002</td>
<td>Systems and Programming</td>
<td>(replaces CITS1002 Programming and Systems, or CITS1210 C Programming)</td>
</tr>
<tr>
<td>S1, S2</td>
<td>CITS2401</td>
<td>Computer Analysis and Visualisation</td>
<td>(replaces CITS1005 Computing for Engrs and Scientists or GENG2140 Mod.and Comp. Analysis for Engrs.)</td>
</tr>
<tr>
<td>S1</td>
<td>CIVL4401</td>
<td>Applied Geomechanics</td>
<td>(replaces CIVL3120 Applied Geomechanics)</td>
</tr>
<tr>
<td>N/S</td>
<td>CIVL4402</td>
<td>Civil Hydraulics</td>
<td>(replaces CIVL3130 Hydraulics)</td>
</tr>
<tr>
<td>S2</td>
<td>CIVL4403</td>
<td>Structural Concrete</td>
<td>(replaces CIVL3112 Structural Concrete Design)</td>
</tr>
<tr>
<td>S1</td>
<td>CIVL4404</td>
<td>Structural Steel</td>
<td>(replaces CIVL3111 Structural Steel Design)</td>
</tr>
<tr>
<td>S1, S2</td>
<td>ECON1101</td>
<td>Microeconomics: Prices and Markets</td>
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</tr>
<tr>
<td>S2</td>
<td>ELEC2303</td>
<td>Embedded Systems</td>
<td></td>
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<tr>
<td>S1, S2</td>
<td>ENSC1002</td>
<td>Material Behaviour from Atoms to Bridges</td>
<td>(replaces MATE1412 Materials Engineering 1)</td>
</tr>
<tr>
<td>S2</td>
<td>FINA2221</td>
<td>Introduction to Finance</td>
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</tr>
<tr>
<td>S1</td>
<td>GENG4403</td>
<td>Extractive Metallurgy</td>
<td>(replaces CHPR3412 Extractive Metallurgy – Principles, and CHPR3413 Extractive Metallurgy – Technologies)</td>
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<tr>
<td>S2</td>
<td>GENG4406</td>
<td>Numerical Methods and Modelling</td>
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<tr>
<td>S1, S2</td>
<td>GENG5505</td>
<td>Project Management and Engineering Practice</td>
<td>(replaces CIVL4150 Engineering Practice)</td>
</tr>
<tr>
<td>S1 and Summer Teaching Period</td>
<td>HRMT2237</td>
<td>Human Resource Management</td>
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<tr>
<td>N/A</td>
<td>MATH2224</td>
<td>Operations Research</td>
<td>(no longer offered)</td>
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<tr>
<td>N/A</td>
<td>MINE160</td>
<td>Introduction to Chemical and Resource Engineering</td>
<td>(no longer offered)</td>
</tr>
<tr>
<td>S2</td>
<td>STAT2062</td>
<td>Fundamentals of Probability with Applications</td>
<td>(replaces STAT2061 Probability and Mathematical Statistics or STAT2225 Statistical Science)</td>
</tr>
<tr>
<td>S2</td>
<td>STAT2402</td>
<td>Analysis of Observations</td>
<td>(replaces STAT2226 Statistical Models for Data)</td>
</tr>
<tr>
<td>N/A</td>
<td>STAT3365</td>
<td>3S5: Industrial Statistics and Total Quality Management</td>
<td>(no longer offered)</td>
</tr>
</tbody>
</table>

Key to availability of units:  
S1 = Semester one  
S2 = Semester two  
N/S = Non-standard Teaching Period, refer to handbook for details.  
N/A = Not available in 2015