Artificial Intelligence wIE BSc (Hons) options 2023-2024

You will be automatically enrolled on these nine course units which total 120 credits. All of the units in this pool are mandatory.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP10120</td>
<td>First Year Team Project</td>
<td>20</td>
</tr>
<tr>
<td>COMP11120</td>
<td>Mathematical Techniques for Computer Science</td>
<td>20</td>
</tr>
<tr>
<td>COMP11212</td>
<td>Fundamentals of Computation</td>
<td>10</td>
</tr>
<tr>
<td>COMP12111</td>
<td>Fundamentals of Computer Engineering</td>
<td>10</td>
</tr>
<tr>
<td>COMP15111</td>
<td>Fundamentals of Computer Architecture</td>
<td>10</td>
</tr>
<tr>
<td>COMP13212</td>
<td>Data Science</td>
<td>10</td>
</tr>
<tr>
<td>COMP15212</td>
<td>Operating Systems</td>
<td>10</td>
</tr>
<tr>
<td>COMP16321</td>
<td>Introduction to Programming 1</td>
<td>20</td>
</tr>
<tr>
<td>COMP16412</td>
<td>Introduction to Programming 2</td>
<td>10</td>
</tr>
</tbody>
</table>

You will be automatically enrolled on seven course units which total 90 credits. For the remaining 30 credits:

For the remaining 30 credits you need to select a minimum of one course unit totalling 10 credits or a maximum of two course units totalling 20 credits from Option Pool 1. You may choose a minimum of zero course units and a maximum of 10 credits from Option Pool 2.

You may choose a maximum of 10 credits of external units from External Option Pool 1 and a maximum of 10 credits of external units from External Option Pool 2.

External option units can be any Level 1 or 2 options, provided that they fit with your timetable and you meet all pre-requisites, these may be:

- Business and Management course units: https://www.ambs.ughandbook.manchester.ac.uk/non-ambs-students/
- University College course units: https://www.alc.manchester.ac.uk/study/university-language-centre-leap-courses/course-information/leap-courses/courses-for-all/
- HSTM20282 Information Visions: https://www.manchester.ac.uk/study/undergraduate/courses/2021/00485/bsc-biology-with-science-and-society/course-details/HSTM20282#course-unit-details

Please note: to enrol on some external course units (such as Language) will require permission from the associated School/Department.

To select any external course units outside of the list given above will require permission from the 2nd Year Tutor.

If you take a 20 credit whole year course unit you are not permitted to drop this unit when course unit selection reopens at the start of semester 2.

You must ensure your credits are balanced over the academic year (60 credits in each semester).

This programme requires 2 themes to be completed from the following list.

* Learning and Search in Artificial Intelligence (COMP34120)
* Natural Language, Representation and Reasoning (COMP24412 & COMP34412)
* Visual Computing (COMP27112, COMP37111 & COMP37212)

Level 2 - compulsory units

All of the units in this pool are mandatory.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</tr>
</thead>
<tbody>
<tr>
<td>COMP23311</td>
<td>Software Engineering 1</td>
<td>10</td>
<td>Agile Methods</td>
</tr>
<tr>
<td>COMP23412</td>
<td>Software Engineering 2</td>
<td>10</td>
<td>Agile Methods</td>
</tr>
</tbody>
</table>
You will be automatically enrolled on these seven course units which total 90 credits.

### Level 2 - option pool 1
From this option pool choose a maximum of 20 credits and a minimum of 10 credits.

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<tr>
<th>Code</th>
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</thead>
<tbody>
<tr>
<td>COMP21111</td>
<td>Logic and Modelling</td>
<td>10</td>
<td>Rigorous Development</td>
</tr>
<tr>
<td>COMP22111</td>
<td>Processor Microarchitecture</td>
<td>10</td>
<td>System-on-Chip</td>
</tr>
<tr>
<td>COMP23111</td>
<td>Database Systems</td>
<td>10</td>
<td>Web and Distributed Systems</td>
</tr>
</tbody>
</table>

### Level 2 - option pool 2
From this option pool choose a maximum of 10 credits and a minimum of 0 credits.

<table>
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<tr>
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<th>Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP22712</td>
<td>Microcontrollers</td>
<td>10</td>
<td>None</td>
</tr>
<tr>
<td>COMP25212</td>
<td>System Architecture</td>
<td>10</td>
<td>Computer Architecture</td>
</tr>
<tr>
<td>COMP27112</td>
<td>Introduction to Visual Computing</td>
<td>10</td>
<td>Visual Computing</td>
</tr>
<tr>
<td>COMP28112</td>
<td>Distributed Systems</td>
<td>10</td>
<td>Web and Distributed Systems</td>
</tr>
</tbody>
</table>

### Level 3 options
You will be automatically enrolled on the Third Year Project course unit which totals <u>40 credits</u>.

For the remaining <u>80 credits</u>:

- You need to select <u>10 credits</u> from semester 1 and <u>10 credits</u> from semester 2 in Option Pool 1.

- You need to select a minimum of two courses totalling <u>20 credits</u> or a maximum of three courses totalling <u>30 credits</u> from Option Pool 2.

- You need to select a minimum of two courses totalling <u>20 credits</u> or a maximum of three courses totalling <u>30 credits</u> from Option Pool 3.

- You may choose a maximum of <u>10 credits</u> of external units from External Option Pool 1 and a maximum of <u>10 credits</u> of external units from External Option Pool 2. </strong>

External option units can be any Level 2 or 3 options, provided that they fit with your timetable and you meet all pre-requisites, these may be:

Business and Management course units: https://www.amb.ughandbook.manchester.ac.uk/non-amb-students/
- University College course units
  - Language course units: https://www.alc.manchester.ac.uk/study/university-language-centre-leap-courses/course-information/leap-courses/courses-for-all/
  - HSTM20282 Information Visions https://www.manchester.ac.uk/study/undergraduate/courses/2021/00485/bsc-biology-with-science-and-society/course-details/HSTM20282#course-unit-details

Please note: to enrol on some external course units (such as Language) will require permission from the associated School/Department.

To select any external course units outside of the list given above will require permission from the 3rd Year Tutor.

If you take a <u>20 credit</u> whole year course unit you are not permitted to drop this unit when course unit selection reopens at the start of semester 2. This includes the option BMAN30010.

You must ensure your credits are balanced over the academic year (<u>60 credits</u> in each semester). </strong>

This programme requires 2 themes to be completed from the following list:

- Learning and Search in Artificial Intelligence (COMP34120)
- Natural Language, Representation and Reasoning (COMP24412 & COMP34412)
- Visual Computing (COMP27112, COMP37111 & COMP37212)
Level 3 - compulsory units
All of the units in this pool are mandatory.

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<th>Code</th>
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</tr>
</thead>
<tbody>
<tr>
<td>COMP30040</td>
<td>3rd Year Project (Single Honours 40 Credits)</td>
<td>40</td>
<td>None</td>
</tr>
</tbody>
</table>

You will be automatically enrolled on the Third Year Project course unit which totals 40 credits.

Level 3 - option pool 1
From this option pool choose 20 credits.

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<th>Code</th>
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</thead>
<tbody>
<tr>
<td>COMP34111</td>
<td>AI &amp; Games</td>
<td>10</td>
<td>None</td>
</tr>
<tr>
<td>COMP34711</td>
<td>Natural Language Processing</td>
<td>10</td>
<td>None</td>
</tr>
<tr>
<td>COMP34812</td>
<td>Natural Language Understanding</td>
<td>10</td>
<td>None</td>
</tr>
<tr>
<td>COMP34612</td>
<td>Computational Game Theory</td>
<td>10</td>
<td>None</td>
</tr>
</tbody>
</table>

Level 3 - option pool 2
From this option pool choose a maximum of 30 credits and a minimum of 20 credits.

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<thead>
<tr>
<th>Code</th>
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</thead>
<tbody>
<tr>
<td>COMP31311</td>
<td>Giving meaning to programs</td>
<td>10</td>
<td>None</td>
</tr>
<tr>
<td>COMP32211</td>
<td>Implementing System-on-Chip Designs</td>
<td>10</td>
<td>System-on-Chip</td>
</tr>
<tr>
<td>COMP33511</td>
<td>User Experience</td>
<td>10</td>
<td>Interactive Systems Design</td>
</tr>
<tr>
<td>COMP36111</td>
<td>Algorithms and Complexity</td>
<td>10</td>
<td>Programming and Algorithms</td>
</tr>
<tr>
<td>COMP37111</td>
<td>Graphics and Virtual Environments</td>
<td>10</td>
<td>Visual Computing</td>
</tr>
<tr>
<td>COMP38311</td>
<td>Advanced Distributed Systems</td>
<td>10</td>
<td>None</td>
</tr>
</tbody>
</table>

Level 3 - option pool 3
From this option pool choose a maximum of 30 credits and a minimum of 20 credits.

<table>
<thead>
<tr>
<th>Code</th>
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<th>Credits</th>
<th>Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP33312</td>
<td>Agile Software Pipelines</td>
<td>10</td>
<td>None</td>
</tr>
<tr>
<td>COMP35112</td>
<td>Chip Multiprocessors</td>
<td>10</td>
<td>Computer Architecture</td>
</tr>
<tr>
<td>COMP36212</td>
<td>Mathematical Systems and Computation</td>
<td>10</td>
<td>Programming and Algorithms</td>
</tr>
<tr>
<td>COMP37212</td>
<td>Computer Vision</td>
<td>10</td>
<td>Visual Computing</td>
</tr>
<tr>
<td>COMP38412</td>
<td>Cyber Security</td>
<td>10</td>
<td>Mobile Computing and Networks</td>
</tr>
<tr>
<td>COMP32412</td>
<td>The Internet of Things: Architectures and Applications</td>
<td>10</td>
<td>Web and Distributed Systems</td>
</tr>
<tr>
<td>COMP34212</td>
<td>Cognitive Robotics</td>
<td>10</td>
<td>None</td>
</tr>
<tr>
<td>COMP34312</td>
<td>Mathematical Topics in Machine Learning</td>
<td>10</td>
<td>None</td>
</tr>
</tbody>
</table>