Artificial Intelligence wIE MEng (Hons) options 2023-2024

You will be automatically enrolled on these nine course units which total <u>120 credits</u>.

Level 1 - compulsory units

All of the units in this pool are mandatory.

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

Level 2 options

You will be automatically enrolled on seven course units which total <u>90 credits</u>.

For the remaining <u>30 credits</u>:

You need to select a minimum of one course unit totalling <u>10 credits</u> or a maximum of two course units totalling <u>20 credits</u> from Option Pool 1. You may choose a minimum of zero course units and a maximum of <u>10 credits</u> from Option Pool 2.

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.

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
- 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 2nd 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.

You must ensure your credits are balanced over the academic year (<u>60 credits</u> 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.

Code	Title	Credits	Theme
COMP23311	Software Engineering 1	10	Agile Methods
COMP23412	Software Engineering 2	10	Agile Methods

COMP24112	Machine Learning	10	None
COMP24412	Knowledge-based AI	10	Natural Language, Representation and Reasoning
COMP26120	Algorithms and Data Structures	20	Computer Languages
COMP24011	Introduction to AI	10	None
COMP26020	Programming Languages & Paradigms	20	None

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.

Code	Title	Credits	Theme
COMP21111	Logic and Modelling	10	Rigorous Development
COMP22111	Processor Microarchitecture	10	System-on-Chip
COMP23111	Database Systems	10	Web and Distributed Systems

Level 2 - option pool 2

From this option pool choose a maximum of 10 credits
and a minimum of 0 credits.

Code	Title	Credits	Theme
COMP22712	Microcontrollers	10	None
COMP25212	System Architecture	10	Computer Architecture
COMP27112	Introduction to Visual Computing	10	Visual Computing
COMP28112	Distributed Systems	10	Web and Distributed Systems

Level 3 options

You will be automatically enrolled on three course units, including the Third Year Project course unit, totalling <u>60 credits</u>.

For the remaining <u>60 credits</u>:

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

You need to select two courses totalling <u>20 credits</u> from Option Pool 2.

You need to select two courses totalling <u>20 credits</u> from Option Pool 3.

You can also choose up to <u>20 credits</u> of optional course units that are external to the Department.

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.ambs.ughandbook.manchester.ac.uk/non-ambs-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.

You must ensure your credits are balanced over the academic year (<u>60 credits</u> 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 3 - compulsory units

All of the units in this pool are mandatory.

Code	Title	Credits	Theme
COMP30040	3rd Year Project (Single Honours 40 Credits)	40	None
MCEL30031	Enterprise Management for Computer Scientists	10	None
MCEL30032	Managing Finance in Enterprises for Computer Scientists	10	None

You will be automatically enrolled on three course units, including the Third Year Project course unit, totalling 60 credits.

Level 3 - option pool 1

From this option pool choose 20 credits.

Code	Title	Credits	Theme
COMP34111	AI & Games	10	None
COMP34711	Natural Language Processing	10	None
COMP34812	Natural Language Understanding	10	None
COMP34612	Computational Game Theory	10	None

Level 3 - option pool 2

From this option pool choose 20 credits.

Code	Title	Credits	Theme
COMP31311	Giving meaning to programs	10	None
COMP32211	Implementing System-on-Chip Designs	10	System-on-Chip
COMP33511	User Experience	10	Interactive Systems Design
COMP36111	Algorithms and Complexity	10	Programming and Algorithms
COMP37111	Graphics and Virtual Environments	10	Visual Computing
COMP38311	Advanced Distributed Systems	10	None

Level 3 - option pool 3

From this option pool choose 20 credits.

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

You will be automatically enrolled on the Summer Industrial Project and MCEL 40042: Business Feasibility Study which totals <u>40 credits</u>.

For the remaining <u>90 credits</u>:

You need to select a minimum of one course unit totalling <u>15 credits</u> or a maximum of two course units totalling <u>30 credits</u> from Option Pool 1.

You need to select a minimum of one course unit totalling <u>15 credits</u> or a maximum of two course units totalling <u>30 credits</u> from Option Pool 2.

You need to select a minimum of one course unit totalling <u>15 credits</u> or a maximum of two course units totalling <u>30 credits</u> from Option Pool 3.

You need to select a minimum of one course unit totalling <u>15 credits</u> or a maximum of two course units totalling <u>30 credits</u> from Option Pool 4.

You need to select one course unit totalling <u>15 credits</u> from Option Pool 5.

Level 4 - compulsory units

All of the units in this pool are mandatory.

Code	Title	Credits
COMP40901	UG MEng Industrial Project	25
MCEL40042	Business Feasibility Study	15

You will be automatically enrolled on the Summer Industrial Project and MCEL 40042: Business Feasibility Study which totals 40 credits.

Level 4 - option pool 1

From this option pool choose a maximum of 30 credits and a minimum of 15 credits.

Code	Title	Credits
COMP60411	Modelling data on the web	15
COMP60711	Data Engineering	15
COMP61011	Foundations of Machine Learning	15
COMP61411	Cryptography	15

Level 4 - option pool 2

From this option pool choose a maximum of 30 credits and a minimum of 15 credits.

Code	Title	Credits
COMP61021	Representation Learning	15
COMP61421	Cyber Security	15
COMP62421	Querying Data on the Web	15

Level 4 - option pool 3

From this option pool choose a maximum of 30 credits and a minimum of 15 credits.

Code	Title	Credits
COMP60332	Automated Reasoning and Verification	15
COMP60532	Principles of Digital Biology	15
COMP61332	Text Mining	15

Level 4 - option pool 4

From this option pool choose a maximum of 30 credits and a minimum of 15 credits.

Code	Title	Credits
COMP60542	Introduction to Health Informatics	15
COMP61342	Cognitive Robotics and Computer Vision	15
COMP63342	Software Security	15

Level 4 - option pool 5

From this option pool choose 15 credits.

Code	Title	Credits
BMAN60422	Data Analytics for Business Decision Making	15
BMAN70391	Strategic Project Organising	15
BMAN71652	Information and Knowledge Management	15
BMAN73271	Decision Behaviour, Analysis and Support	15