

## Computer Science wIE MEng (Hons) options 2021-2022

If you wish to take an external unit which is not listed on your programme course unit list you must get permission from your Year Tutor. This applies for every year of your programme. If your choices do not meet the Department's course unit and theme requirements you will be contacted and be required to change your choices.

### 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 have 60 credits of compulsory course units listed in the table "compulsory units" below.

Out of the remaining 60 credits of free choice:

You must choose at least 40 credits of optional COMP course units - minimum of 20 and maximum 30 from "option pool 1" below and of minimum of 20 and maximum 30 from "option pool 2" below. The minimum number of credits selected from both "option pool 1" and "option pool 2" is 40, the maximum is 60 credits.

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 can also choose up to 20 credits of optional course units that are external to the Department. You can choose any Level 1 or 2 options for which you meet any pre-requisites and fits with your timetable, these may be:

- Business and Management course units: <https://ug handbook.portals.mbs.ac.uk/Non-AllianceMBSstudents.aspx>
- University College course units
- Language course units: <https://www.languagecentre.manchester.ac.uk/learn-a-language/courses-for-students/>

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](/ugt/index.php#tutors).

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

### 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
COMP26120	Algorithms and Data Structures	20	Computer Languages
COMP26020	Programming Languages & Paradigms	20	None

### Level 2 - option pool 1

From this option pool choose a maximum of 30 credits and a minimum of 20 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

COMP24011	Introduction to AI	10	None
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### Level 2 - option pool 2

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

Code	Title	Credits	Theme
COMP22712	Microcontrollers	10	None
COMP24112	Machine Learning	10	None
COMP24412	Knowledge-based AI	10	Natural Language, Representation and Reasoning
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 have 60 credits of compulsory course units listed in the table "compulsory units" below.

Out of the remaining 60 credits of free choice:

You must choose 60 credits of optional COMP course units from option pool 1 - 3 below. 30 from "option pool 1", 30 from "option pool 2".

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

### 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

### Level 3 - option pool 1

From this option pool choose 30 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
COMP34111	AI & Games	10	None
COMP34711	Natural Language Processing	10	None
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 2

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

Code	Title	Credits	Theme
COMP33312	Agile Software Pipelines	10	None
COMP34612	Computational Game Theory	10	None
COMP34812	Natural Language Understanding	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

You should aim to do 45 or 60 credits in each of semester 1 and semester 2.

Pools 1 to 4 map to periods 1 to 4 in the PGT timetable. You must pick exactly one module from Pool 5 avoiding timetable clashes.

Mandatory units - 40 credits

Optional units - 90 credits

#### 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

#### 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
COMP62521	Agile and Test-Driven Development	15

#### Level 4 - option pool 3

From this option pool choose a maximum of 30 credits  
and a minimum of 0 credits.

Code	Title	Credits
COMP60332	Automated Reasoning and Verification	15
COMP60532	Principles of Digital Biology	15
COMP61332	Text Mining	15
COMP62532	Component-based Software Development	15

#### Level 4 - option pool 4

From this option pool choose a maximum of 30 credits  
and a minimum of 0 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