

## Computer Science BSc (Hons) options 2019-2020

You will be automatically enrolled on these nine course units which total 120 credits.

### 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 four course units which total 60 credits.

For the remaining 60 credits:

You need to select a minimum of two course units totalling 20 credits or a maximum of three course units totalling 30 credits from Option Pool 1.

You need to select a minimum of two course units totalling 20 credits or a maximum of three course units totalling 30 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.ug handbook.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 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).

### Level 2 - compulsory units

All of the units in this pool are mandatory.

Code	Title	Credits	Theme
COMP23111	Fundamentals of Databases	10	Web and Distributed Systems
COMP23311	Software Engineering 1	10	Agile Methods
COMP23412	Software Engineering 2	10	Agile Methods
COMP25111	Operating Systems	10	Computer Architecture
COMP26120	Algorithms and Imperative Programming	20	Computer Languages

### 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
COMP24111	Machine Learning and Optimisation	10	Learning and Search in Artificial Intelligence

### Level 2 - option pool 2

From this option pool choose a maximum of 40 credits and a minimum of 30 credits.

Code	Title	Credits	Theme
COMP22712	Microcontrollers	10	None
COMP24412	Symbolic AI	10	Natural Language, Representation and Reasoning
COMP25212	System Architecture	10	Computer Architecture
COMP27112	Computer Graphics and Image Processing	10	Visual Computing
COMP28112	Distributed Computing	10	Web and Distributed Systems
COMP28512	Mobile Systems	10	Mobile Computing and Networks

### Level 3 options

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

For the remaining 80 credits:

You need to select a minimum of three course units totalling 30 credits or a maximum of four course units totalling 40 credits from Option Pool 1.

You need to select a minimum of three course units totalling 30 credits or a maximum of four course units totalling 40 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 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.ug handbook.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 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. This includes the option BMAN30010.**

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

### Level 3 - option pool 1

From this option pool choose a maximum of 40 credits and a minimum of 20 credits.

Code	Title	Credits	Theme
COMP32211	Implementing System-on-Chip Designs	10	System-on-Chip
COMP33511	User Experience	10	Interactive Systems Design
COMP33711	Agile Software Engineering	10	Agile Methods
COMP36111	Advanced Algorithms 1	10	Programming and Algorithms
COMP37111	Advanced Computer Graphics	10	Visual Computing
COMP38411	Cryptography and Network Security	10	Mobile Computing and Networks
COMP38211	Documents and Data on the Web	10	None

### Level 3 - option pool 2

From this option pool choose a maximum of 40 credits  
and a minimum of 20 credits.

Code	Title	Credits	Theme
COMP34412	Natural Language Systems	10	Natural Language, Representation and Reasoning
COMP35112	Chip Multiprocessors	10	Computer Architecture
COMP36512	Compilers	10	Computer Languages
COMP37212	Computer Vision	10	Visual Computing
COMP32412	The Internet of Things: Architectures and Applications	10	Web and Distributed Systems
COMP34212	Cognitive Robotics	10	None

### Level 3 - option pool 3

From this option pool choose a maximum of 20 credits  
and a minimum of 0 credits.

Code	Title	Credits	Theme
COMP34120	AI and Games	20	Learning and Search in Artificial Intelligence