

## Software Engineering BSc (Hons) options 2020-2021

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 these six course units which total 80 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 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 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.

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://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.

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.

- \* Agile Methods (COMP23311 & COMP23412)
- \* Rigorous Development (COMP21111)
- \* Software Engineering (COMP23311, COMP23412 & COMP33511)

### Level 2 - compulsory units

All of the units in this pool are mandatory.

| Code      | Title                  | Credits | Theme                       |
|-----------|------------------------|---------|-----------------------------|
| COMP23111 | Database Systems       | 10      | Web and Distributed Systems |
| COMP23311 | Software Engineering 1 | 10      | Agile Methods               |
| COMP23412 | Software Engineering 2 | 10      | Agile Methods               |

|           |                                   |    |                             |
|-----------|-----------------------------------|----|-----------------------------|
| COMP26120 | Algorithms and Data Structures    | 20 | Computer Languages          |
| COMP28112 | Distributed Systems               | 10 | Web and Distributed Systems |
| COMP26020 | Programming Languages & Paradigms | 20 | None                        |

### 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       |
| COMP24011 | Introduction to AI          | 10      | None                 |

### Level 2 - option pool 2

From this option pool choose a maximum of 20 credits  
and a minimum of 10 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                               |

### Level 3 options

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

**You need to select a minimum of two courses totalling 20 credits or a maximum of three courses totalling 30 credits from Option Pool 1. You need to select a minimum of two courses totalling 20 credits or a maximum of three courses 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. You may choose a maximum of 20 credits of BMAN30010. Please note that as this is a year-long course unit if you take this in semester one you must continue in 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 2 or 3 options for which you meet any pre-requisites and fits with your timetable, 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](/ugt/index.php#tutors).

**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.**

- \* Agile Methods (COMP23311 & COMP23412)
- \* Rigorous Development (COMP21111)
- \* Software Engineering (COMP23311, COMP23412 & COMP33511)

### Level 3 - compulsory units

All of the units in this pool are mandatory.

| Code      | Title                         | Credits | Theme |
|-----------|-------------------------------|---------|-------|
| COMP30040 | Third Year Project Laboratory | 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    |
| COMP36111 | Algorithms and Complexity           | 10      | Programming and Algorithms    |
| COMP36511 | Compilers                           | 10      | None                          |
| COMP37111 | Advanced Computer Graphics          | 10      | Visual Computing              |
| COMP38411 | Cryptography and System 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  |
|-----------|--|---------|--|
| COMP33712 | Agile Software Engineering                             | 10      | None   |
| COMP34412 | Natural Language Systems                               | 10      | Natural Language, Representation and Reasoning |
| COMP35112 | Chip Multiprocessors                                   | 10      | Computer Architecture                          |
| COMP36212 | Mathematical Systems and Computation                   | 10      | Programming and Algorithms                     |
| 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 |