

Computer Systems Engineering MEng (Hons) options 2021-2022

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 seven course units which total 90 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 select a minimum of zero course units or a maximum of one course unit totalling 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.

You can 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.

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.

- * Computer Architecture (COMP25111, COMP25212 & COMP35112)
- * System-on-Chip (COMP22111 & COMP32211)

Level 2 - compulsory units

All of the units in this pool are mandatory.

| Code | Title | Credits | Theme |
|-----------|--------------------------------|---------|-----------------------|
| COMP22111 | Processor Microarchitecture | 10 | System-on-Chip |
| COMP22712 | Microcontrollers | 10 | None |
| COMP23311 | Software Engineering 1 | 10 | Agile Methods |
| COMP23412 | Software Engineering 2 | 10 | Agile Methods |
| COMP25212 | System Architecture | 10 | Computer Architecture |
| 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 20 credits and a minimum of 10 credits.

| Code | Title | Credits | Theme |
|-----------|---------------------|---------|-----------------------------|
| COMP21111 | Logic and Modelling | 10 | Rigorous Development |
| COMP23111 | Database Systems | 10 | Web and Distributed Systems |
| COMP24011 | Introduction to AI | 10 | None |

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 |
|-----------|----------------------------------|---------|--|
| COMP24112 | Machine Learning | 10 | None |
| COMP24412 | Knowledge-based AI | 10 | Natural Language, Representation and Reasoning |
| 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 five course units, including the Third Year Project course unit, totalling >80 credits.

You need to select two courses units totalling >20 credits from Option Pool 1. You need to select two courses units totalling >20 credits from Option Pool 2.

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

- * Computer Architecture (COMP25111, COMP25212 & COMP35112)
- * System-on-Chip (COMP22111 & COMP32211)

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 |
| COMP32211 | Implementing System-on-Chip Designs | 10 | System-on-Chip |
| COMP35112 | Chip Multiprocessors | 10 | Computer Architecture |
| 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 20 credits.

| Code | Title | Credits | Theme |
|-----------|-----------------------------------|---------|----------------------------|
| COMP31311 | Giving meaning to programs | 10 | None |
| 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 20 credits.

| Code | Title | Credits | Theme |
|-----------|--------------------------------------|---------|-------------------------------|
| COMP33312 | Agile Software Pipelines | 10 | None |
| COMP34612 | Computational Game Theory | 10 | None |
| COMP34812 | Natural Language Understanding | 10 | None |
| COMP36212 | Mathematical Systems and Computation | 10 | Programming and Algorithms |
| COMP37212 | Computer Vision | 10 | Visual Computing |
| COMP38412 | Cyber Security | 10 | Mobile Computing and Networks |
| COMP34212 | Cognitive Robotics | 10 | None |

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

You need to select a minimum of one course unit totalling 15 credits or a maximum of two course units totalling 30 credits from Option Pool 1. You need to select a minimum of one course unit totalling 15 credits or a maximum of two course units totalling 30 credits from Option Pool 2. You need to select a minimum of one course unit totalling 15 credits or a maximum of two course units totalling 30 credits from Option Pool 3. You need to select a minimum of one course unit totalling 15 credits or a maximum of two course units totalling 30 credits from Option Pool 4. You need to select one course unit totalling 15 credits 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 |

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 |