Software Engineering BSc (Hons) options 2017-2018

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
COMP14112	Fundamentals of Artificial Intelligence	10
COMP15111	Fundamentals of Computer Architecture	10
COMP16121	Object Oriented Programming with Java 1	20
COMP16212	Object Oriented Programming with Java 2	10
COMP18112	Fundamentals of Distributed Systems	10

Level 2 options

You will be automatically enrolled on these six course units which total <u>80 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 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 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.

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 can also choose up to <u> 20 credits</u> 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.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.

 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, COMP33711 & COMP33812)
* Rigorous Development (COMP21111 & COMP31111)
* Software Engineering (COMP23311, COMP23412 & COMP33511)

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	Software Engineering

COMP25111	Operating Systems	10	Computer Architecture
COMP26120	Algorithms and Imperative Programming	20	Computer Languages
COMP28112	Distributed Computing	10	Web and Distributed Systems

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
COMP28411	Computer Networks	10	Mobile Computing and Networks

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
COMP24412	Symbolic AI	10	Natural Language, Representation and Reasoning
COMP25212	System Architecture	10	Computer Architecture
COMP27112	Computer Graphics and Image Processing	10	Visual Computing
COMP28512	Mobile Systems	10	Mobile Computing and Networks

Level 2 - option pool 3

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

Code	Title	Credits	Theme
BMAN10011	Fundamentals of Management	10	None
BMAN10621B	Fundamentals of Financial Reporting	10	None
BMAN20811	Managing Business Operations	10	None
BMAN20821	New Product Development and Innovation	10	None
BMAN21061	Introduction to Management Information Systems	10	None
UCIL10221	Science and the Modern World	10	None
UCIL20001	Leadership of Learning	10	None
UCIL20021	Leadership in Action	10	None
UCIL20031	Leadership in Action Online Unit	10	None
UCIL20181	Science, the Media and the Public	10	None
UCIL20331	From Cholera to Aids: A Global History of Epidemics	10	None
UCIL21301	Communicating with Confidence	10	None
UCIL22301	Curating Culture	10	None
UCIL22501	Global Citizenship and Sustainability	10	None

Level 2 - option pool 4

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

Code	Title	Credits	Theme
BMAN10252	Fundamentals of Technological Change	10	None
BMAN10552	Fundamentals of Finance	10	None
BMAN10612	Business Economics	10	None
BMAN10632	Fundamentals of Accounting	10	None
BMAN20242	Introduction to Corporate Finance & Financial Instruments	10	None
BMAN20792	Technology Strategy & Innovation 1	10	None
BMAN20832	Marketing	10	None
BMAN20842	Organisations and Emploment	10	None
BMAN21012	Global Contexts of Business and Management	10	None
UCIL20022	Leadership in Action	10	None
UCIL20032	Leadership in Action Online Unit	10	None
UCIL20092	The Crisis of Nature: Issues in Environmental History	10	None
UCIL20102	Multilingual Manchester	10	None
UCIL20282	The Information Age	10	None
UCIL20882	An Introduction to Current Topics in Biology	10	None
UCIL21002	Leadership of Learning	10	None
UCIL21102	Diverse Britain in a Globalising World	10	None
UCIL21202	Bioethics: Contemporary Issues in Science and Biomedicine	10	None

UCIL21302	Communicating with Confidence	10	None
UCIL21402	Innovation for a Sustainable Society	10	None
UCIL21802	Body, Health and Well-Being	10	None
UCIL21902	Humanitarian Challenges in an Unequal World	10	None
UCIL24002	The Art of Enterprise	10	None
UCIL25002	The Digital Society	10	None
UCIL29002	Physics & The Grand Challenges of Today	10	None

Level 3 options

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

 You need to select a minimum of two courses totalling <u> 20 credits </u> or a maximum of three courses totalling 30 credits from Option Pool 1. You need to select a minimum of two courses totalling <u> 20 credits</u> or a maximum of three courses totalling <u> 30 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. You may choose a maximum of <u> 20 credits</u> 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 <u> 20 credits</u> 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.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.

 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.

* Agile Methods (COMP23311, COMP23412, COMP33712 & COMP33812)
* Rigorous Development (COMP21111 & COMP31111)
* Software Engineering (COMP23311, COMP23412 & COMP33511)

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
COMP31111	Verified Development	10	Rigorous Development
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

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
COMP33812	Software Evolution	10	Agile Methods
COMP34412	Natural Language Systems	10	Natural Language, Representation and Reasoning
COMP35112	Chip Multiprocessors	10	Computer Architecture
COMP36212	Advanced Algorithms 2	10	Programming and Algorithms
COMP36512	Compilers	10	Computer Languages
COMP37212	Computer Vision	10	Visual Computing
COMP32412	The Internet of Things: Architectures and Applications	10	Web and Distributed Systems

Level 3 - option pool 3

From this option pool choose a maximum of 40 credits
and a minimum of 0 credits.

Code	Title	Credits	Theme
COMP34120	AI and Games	20	Learning and Search in Artificial Intelligence
COMP38120	Documents, Services and Data on the Web	20	Web and Distributed Systems

Level 3 - option pool 4

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

Code	Title	Credits	Theme
BMAN20811	Managing Business Operations	10	None
BMAN30010	Management and Technology	20	None
BMAN30021	Marketing	10	None
BMAN30022	Strategy	10	None
BMAN30042	Human Resource Management	10	None
BMAN30202	Cases in Digital Transformation	10	None
BMAN30982	Project Organisations: Management & Strategy	10	None
BMAN30991	The International Management of Knowledge & Technology	10	None
BMAN31212	Investment Economics and Innovation	10	None
BMAN31752	Consumers and Markets	10	None
BMAN31842	People Management and Change	10	None
MCEL30001	Tools and Techniques for Enterprise	10	None
MCEL30002	Tools and Techniques for Enterprise	10	None
MCEL30022	Interdisciplinary Sustainable Development	10	None
MCEL30031	Enterprise Management for Computer Scientists	10	None
MCEL30032	Managing Finance in Enterprises for Computer Scientists	10	None
UCIL20001	Leadership of Learning	10	None
UCIL20021	Leadership in Action	10	None
UCIL20022	Leadership in Action	10	None
UCIL20031	Leadership in Action Online Unit	10	None
UCIL20032	Leadership in Action Online Unit	10	None
UCIL20092	The Crisis of Nature: Issues in Environmental History	10	None
UCIL20102	Multilingual Manchester	10	None
UCIL20181	Science, the Media and the Public	10	None
UCIL20282	The Information Age	10	None
UCIL20331	From Cholera to Aids: A Global History of Epidemics	10	None
UCIL20882	An Introduction to Current Topics in Biology	10	None
UCIL21002	Leadership of Learning	10	None
UCIL21102	Diverse Britain in a Globalising World	10	None
UCIL21202	Bioethics: Contemporary Issues in Science and Biomedicine	10	None
UCIL21301	Communicating with Confidence	10	None
UCIL21302	Communicating with Confidence	10	None
UCIL21402	Innovation for a Sustainable Society	10	None
UCIL21802	Body, Health and Well-Being	10	None
UCIL21902	Humanitarian Challenges in an Unequal World	10	None
UCIL22301	Curating Culture	10	None
UCIL22501	Global Citizenship and Sustainability	10	None
UCIL24002	The Art of Enterprise	10	None
UCIL25002	The Digital Society	10	None
UCIL29002	Physics & The Grand Challenges of Today	10	None
UCIL30832	Madness and Society in the Modern Age	10	None
UCIL32511	From Baker Street to CSI	20	None
UCIL33201	Climate Change and Society	10	None