COURSE UNIT CHOICES FOR CURRENT SECOND YEAR STUDENTS

CARS20021/CARS20022 (10) Leadership in Action are approved external units for all programmes except Computing for Business Applications and Internet Computing.

You will not be able to register for these units on Campus Solutions, instead you should register your interest here: www.manchester.ac.uk/careers/mlp
BSc (Hons) Computer Science (and with Industrial Experience)

Mandatory – 30 Credits

You must take the following course unit totaling 30 credits
- COMP20900 (30) Third Year Project Laboratory

Optional – 40 Credits

You must choose 20 credits from the following course units
- COMP20081 (10) Computer Networks
- COMP20121 (10) The Implementation and Power of Computer Languages
- COMP20241 (10) VLSI System Design
- COMP20411 (10) Subsymbolic Processing and Neural Networks

Mandatory – 80 Credits

You must take the following course units totaling 80 credits
- COMP20910 (20) Practical and transferable skills
- COMP20021 (10) Imperative programming with C and C++
- COMP20051 (10) Operating Systems
- COMP20341 (10) Software Engineering I
- COMP20012 (10) Introduction to Algorithms and Data Structures
- COMP20032 (10) Distributed Computing
- COMP20312 (10) Fundamentals of Databases

Year 3

You must choose a minimum of 40 credits and may choose a maximum of 90 credits from the following course units
- COMP30002 (10) High Performance Microprocessors
- COMP30061 (10) Applying UML and Patterns
- COMP30071 (10) Advanced Computer Graphics
- COMP30092 (10) Advanced Computer Graphics
- COMP30112 (10) Concurrent Programming Languages
- COMP30142 (10) Compilers
- COMP30151 (10) Understanding Programming Languages
- COMP30172 (10) Advanced Algorithms
- COMP30191 (10) Theory of Games and Games Models

Optional – 90 Credits

You may choose between 0 and 50 credits from the following course units
- COMP30222 (10) Quantum Computing
- COMP30251 (10) Optical Computing
- COMP30291 (10) Digital Media Processing
- COMP30311 (10) Advanced Databases
- COMP30341 (10) Model-Based Software Design
- COMP30421 (10) Natural Language Engineering
- COMP30432 (10) Computer Vision
- COMP30332 (10) Software Evolution
- COMP30352 (10) Information Retrieval, Hypermedia and the Web
- COMP30412 (10) Knowledge Representation
- COMP30202 (10) From Transistors to Systems-on-Chip
- COMP37332 (10) Data Integration and Analysis
- COMP37412 (10) Dialogue Systems
- COMP37321 (10) Modern Software Engineering Practice
- COMP37310 (20) Management Support Systems
- COMP37341 (10) Semantic Web
- MSEC31131 (10) Enterprise Management
- MSEC31122 (10) Managing Finance in Enterprise

You may choose between 0 and 20 credits from the following course units
- BMAN30741 (10) Requirements Engineering
- BMAN30034 (10) Technological Development in the Network Society
- BMAN30732 (10) IT Architecture

You may choose between 0 and 20 credits for the following list of external units. If you wish to choose a different external unit please see your year tutor.
- ECON20120 (20) Mathematical Economics
- HSTM20282 (10) Computing, History and Culture
- MSEC31131 (10) Enterprise Management for Computer Scientists
- MSEC31122 (10) Managing Finance in Enterprises for Computer Scientists
- ULSP20010 (20) Intermediate Spanish
- ULIT20010 (20) Intermediate Italian
- ULJA20010 (20) Intermediate Japanese
- ULFR20010 (20) Intermediate French
- MSEC30052 (10) Sustainable Development for Engineers and Scientists
MEng (Hons) Computer Science

Mandatory – 90 Credits

You must take the following course units totaling 90 credits

- COMP20910 (20) Practical and transferable skills
- COMP20021 (10) Imperative programming with C and C++
- COMP20051 (10) Operating Systems
- COMP20341 (10) Software Engineering I
- COMP20012 (10) Introduction to Algorithms and Data Structures
- COMP20032 (10) Distributed Computing
- COMP20312 (10) Fundamentals of Databases
- COMP20081 (10) Computer Networks

Optional – 30 Credits

You must choose 10 credits from the following course units

- COMP20121 (10) The Implementation and Power of Computer Languages
- COMP20241 (10) VLSI System Design
- COMP20411 (10) Subsymbolic Processing and Neural Networks

You must between 10 and 0 credits from the following course units

- COMP20341 (10) Model-Based Software Design

You must choose a minimum of 30 credits and may choose a maximum of 50 credits from the following course units

- COMP30071 (10) Advanced Computer Graphics
- COMP30112 (10) Concurrency
- COMP30141 (10) Compilers
- COMP30172 (10) Advanced Algorithms
- COMP30191 (10) Theory of Games and Games Models
- COMP30002 (10) High Performance Microprocessors
- COMP30092 (10) Digital Wireless Communications and Networks
- COMP30151 (10) Understanding Programming Languages
- COMP30341 (10) Model-Based Software Design
- COMP30071 (10) Advanced Computer Graphics
- COMP30112 (10) Concurrency
- COMP30141 (10) Compilers
- COMP30172 (10) Advanced Algorithms
- COMP30191 (10) Theory of Games and Games Models
- COMP30002 (10) High Performance Microprocessors
- COMP30092 (10) Digital Wireless Communications and Networks
- COMP30151 (10) Understanding Programming Languages
- COMP30341 (10) Model-Based Software Design

You may choose between 20 and 0 credits from the following course units

- COMP30221 (10) Quantum Computing
- COMP30251 (10) Optical Computing
- COMP30291 (10) Digital Media Processing
- COMP30412 (10) Knowledge Representation
- COMP30332 (10) Software Evolution
- COMP30352 (10) Information Retrieval, Hypermedia and the Web
- COMP30421 (10) Natural Language Engineering
- COMP30432 (10) Computer Vision
- COMP30202 (10) From Transistors to Systems-on-Chip
- COMP37332 (10) Data Integration and Analysis
- COMP37412 (10) Dialogue Systems
- COMP37321 (10) Modern Software Engineering Practice
- COMP37310 (20) Management Support Systems
- COMP37341 (10) Semantic Web

You may choose between 0 and 20 credits from the following course units

- BMAN30741 (10) Requirements Engineering
- BMAN30034 (10) Technological Development in the Network Society
- BMAN30732 (10) IT Architecture

YEAR 3

Mandatory – 70 Credits

You must take the following course unit totaling 70 credits

- COMP30900 (30) Third Year Project Laboratory
- COMP30311 (10) Advanced Databases
- COMP30061 (10) Applying UML and Patterns
- MSEC31131 (10) Enterprise Management
- MSEC31122 (10) Managing Finance in Enterprise

Optional – 50 Credits

You must choose a minimum of 30 credits and may choose a maximum of 50 credits from the following course units

- COMP30071 (10) Advanced Computer Graphics
- COMP30112 (10) Concurrency
- COMP30141 (10) Compilers
- COMP30172 (10) Advanced Algorithms
- COMP30191 (10) Theory of Games and Games Models
- COMP30002 (10) High Performance Microprocessors
- COMP30092 (10) Digital Wireless Communications and Networks
- COMP30151 (10) Understanding Programming Languages
- COMP30341 (10) Model-Based Software Design

You may choose between 20 and 0 credits from the following course units

- COMP30221 (10) Quantum Computing
- COMP30251 (10) Optical Computing
- COMP30291 (10) Digital Media Processing
- COMP30412 (10) Knowledge Representation
- COMP30332 (10) Software Evolution
- COMP30352 (10) Information Retrieval, Hypermedia and the Web
- COMP30421 (10) Natural Language Engineering
- COMP30432 (10) Computer Vision
- COMP30202 (10) From Transistors to Systems-on-Chip
- COMP37332 (10) Data Integration and Analysis
- COMP37412 (10) Dialogue Systems
- COMP37321 (10) Modern Software Engineering Practice
- COMP37310 (20) Management Support Systems
- COMP37341 (10) Semantic Web

You may choose between 0 and 20 credits from the following course units

- BMAN30741 (10) Requirements Engineering
- BMAN30034 (10) Technological Development in the Network Society
- BMAN30732 (10) IT Architecture
**BSc (Hons) Computer Engineering (and with Industrial Experience)**

**YEAR 2**

120 CREDITS

**Mandatory – 100 Credits**

- COMP20012 (10) Introduction to Algorithms and Data Structures
- COMP20021 (10) Imperative Programming with C and C++
- COMP20032 (10) Distributed Computing
- COMP20051 (10) Operating Systems
- COMP20341 (10) Software Engineering I
- COMP20910 (20) Practical and Transferable Skills
- COMP20241 (10) VLSI System Design
- COMP20252 (10) Mobile Systems

**Optional – 20 Credits**

- You must choose 10 credits from the following course units
  - COMP20081 (10) Computer Networks
  - COMP20121 (10) The Implementation and Power of Computer Languages
  - COMP20411 (10) Subsymbolic Processing and Neural Networks

**YEAR 3**

120 CREDITS

**Mandatory – 30 Credits**

- COMP30002 (10) High Performance Microprocessors
- COMP30061 (10) Applying UML and Patterns
- COMP30071 (10) Advanced Computer Graphics
- COMP30092 (10) Digital Wireless Communications and Networks
- COMP30112 (10) Concurrency
- COMP30141 (10) Compilers
- COMP30151 (10) Understanding Programming Languages
- COMP30172 (10) Advanced Algorithms
- COMP30191 (10) Theory of Games and Games Models
- COMP30311 (10) Advanced Databases
- COMP30341 (10) Model-Based Software Design
- COMP30352 (10) Information Retrieval, Hypermedia and the Web
- COMP30421 (10) Natural Language Engineering
- COMP30432 (10) Computer Vision
- COMP30451 (10) Robotics
- COMP30412 (10) Knowledge Representation
- COMP30332 (10) Software Evolution
- COMP30072 (10) From Transistors to Systems-on-Chip
- COMP30332 (10) Data Integration and Analysis
- COMP30321 (10) Modern Software Engineering Practice
- COMP30310 (20) Management Support Systems
- COMP30341 (10) Semantic Web
- MSEC31131 (10) Enterprise Management
- MSEC31122 (10) Managing Finance in Enterprise

**Optional – 90 Credits**

- You must choose between 50 and 70 credits from the following
  - COMP30081 (10) Computer Networks
  - COMP30121 (10) The Implementation and Power of Computer Languages
  - COMP30411 (10) Subsymbolic Processing and Neural Networks

The optional choices you make should consist of 40 credits from semester 1 and 30 credits from semester 2

**YEAR 1**

120 CREDITS

**Mandatory – 100 Credits**

- COMP20012 (10) Introduction to Algorithms and Data Structures
- COMP20021 (10) Imperative Programming with C and C++
- COMP20032 (10) Distributed Computing
- COMP20051 (10) Operating Systems
- COMP20341 (10) Software Engineering I
- COMP20910 (20) Practical and Transferable Skills
- COMP20241 (10) VLSI System Design
- COMP20252 (10) Mobile Systems

**Optional – 20 Credits**

- You must choose between 20 and 40 credits from the following
  - COMP30251 (10) Optical Computing
  - COMP30291 (10) Digital Media Processing
  - COMP30202 (10) From Transistors to Systems-on-Chip

You must choose between 20 and 40 credits from the following

- COMP30222 (10) Quantum Computing

You must choose between 0 and 20 credits from the following

- BMAN30741 (10) Requirements Engineering
- BMAN30034 (10) Technological Development in the Network Society
- BMAN30732 (10) IT Architecture

You may choose between 0 and 20 credits for the following list of external units. If you wish to choose a different external unit please see your year tutor.

- ECON20120 (20) Mathematical Economics
- HSTM20282 (10) Computing, History and Culture
- MSEC31131 (10) Enterprise Management for Computer Scientists
- MSEC31122 (10) Managing Finance in Enterprises for Computer Scientists
- ULSP20010 (20) Intermediate Spanish
- ULIT20010 (20) Intermediate Italian
- ULJA20010 (20) Intermediate Japanese
- ULFR20010 (20) Intermediate French
- MSEC30052 (10) Sustainable Development for Engineers and Scientists
MEng (Hons) Computer Engineering

**YEAR 2**

**Mandatory – 110 Credits**

- COMP20012 (10) Introduction to Algorithms and Data Structures
- COMP20021 (10) Imperative programming with C and C++
- COMP20032 (10) Distributed Computing
- COMP20051 (10) Operating Systems
- COMP20081 (10) Computer Networks
- COMP20341 (10) Software Engineering I
- COMP20910 (20) Practical and transferable skills
- COMP20212 (10) Digital Design Techniques
- MSEC31131 (10) Enterprise Management
- MSEC31122 (10) Managing Finance in Enterprise

**Optional – 70 Credits**

You must choose 10 credits from the following course units:

- COMP20072 (10) Computer Graphics
- COMP20142 (10) Logic in Computer Science
- COMP20442 (10) Artificial Intelligence Programming
- COMP20312 (10) Fundamentals of Databases

The optional choices you make should consist of 40 credits from semester 1 and 30 credits from semester 2.

**YEAR 3**

**Mandatory – 50 Credits**

- COMP30900 (30) Third Year Project Laboratory
- MSEC31131 (10) Enterprise Management
- MSEC31122 (10) Managing Finance in Enterprise

**Optional – 70 Credits**

You must take the following course unit totaling 50 credits:

- COMP20212 (10) Digital Design Techniques
- COMP20241 (10) VLSI System Design
- COMP20252 (10) Mobile Systems

You must choose a minimum of 20 credits from the following course units:

- COMP30222 (10) Quantum Computing
- COMP30251 (10) Optical Computing
- COMP30202 (10) From Transistors to Systems-on-Chip
- COMP30291 (10) Digital Media Processing

You may choose between 30 and 50 credits from the following course units:

- COMP30002 (10) High Performance Microprocessors
- COMP30061 (10) Applying UML and Patterns
- COMP30071 (10) Advanced Computer Graphics
- COMP30092 (10) Digital Wireless Communication and Network
- COMP30112 (10) Concurrency
- COMP30142 (10) Compilers
- COMP30151 (10) Understanding Programming Languages
- COMP30172 (10) Advanced Algorithms
- COMP30191 (10) Theory of Games and Games Models
- COMP30311 (10) Advanced Databases
- COMP30332 (10) Software Evolution
- COMP30352 (10) Information Retrieval, Hypermedia and the Web
- COMP30341 (10) Model-Based Software Design
- COMP30412 (10) Knowledge Representation
- COMP30421 (10) Natural Language Engineering
- COMP30432 (10) Computer Vision
- COMP30202 (10) From Transistors to Systems-on-Chip
- COMP37332 (10) Data Integration and Analysis
- COMP37412 (10) Dialogue Systems
- COMP37321 (10) Modern Software Engineering Practice
- COMP37310 (20) Management Support Systems
- COMP37341 (10) Semantic Web

You may choose between 0 and 20 credits from the following course units:

- BMAN30741 (10) Requirements Engineering
- BMAN30034 (10) Technological Development in the Network Society
- BMAN30732 (10) IT Architecture
COMPUTER SCIENCE - BSc (Hons) Software Engineering (and with industrial experience)

Mandatory – 90 Credits

You must take the following course units totaling 90 credits

- COMP20910 (20) Practical and transferable skills
- COMP20021 (10) Imperative programming with C and C++
- COMP20051 (10) Operating Systems
- COMP20341 (10) Software Engineering I
- COMP20121 (10) Introduction to Algorithms and Data Structures
- COMP20081 (10) Computer Networks
- COMP20352 (10) Software Engineering II

Optional – 30 Credits

You must choose 10 credits from the following course units

- COMP20121 (10) The Implementation and Power of Computer Languages
- COMP20241 (10) VLSI System Design
- COMP20411 (10) Subsymbolic Processing and Neural Networks

You must choose 20 credits from the following course units

- COMP20032 (10) Distributed Computing
- COMP20072 (10) Computer Graphics
- COMP2042 (10) Logic in Computer Science
- COMP20442 (10) Artificial Intelligence Programming
- COMP20252 (10) Mobile Systems

YEAR 2

120 CREDITS

The optional choices you make should consist of 30 credits from semester 1 and 40 credits from semester 2

You must take the following course units totaling 50 credits

- COMP30900 (30) Third Year Project Laboratory
- COMP30061 (10) Applying UML and Patterns
- MSEC31131 (10) Enterprise Management for Computer Scientists

Optional – 70 Credits

You must choose a minimum of 30 credits and may choose a maximum of 50 credits from the following

- COMP30141 (10) Compilers
- COMP30311 (10) Advanced Databases
- COMP30341 (10) Model-Based Software Design
- COMP30332 (10) Software Evolution
- COMP37310 (20) Management Support Systems
- COMP37321 (10) Modern Software Engineering Practice
- COMP37332 (10) Data Integration and Analysis

You may choose between 20 and 40 credits from the following course units

- COMP30071 (10) Advanced Computer Graphics
- COMP30092 (10) Digital Wireless Communications and Networks
- COMP30151 (10) Understanding Programming Languages
- COMP30191 (10) Theory of Games and Games Models
- COMP30251 (10) Optical Computing
- COMP30291 (10) Digital Media Processing
- COMP30352 (10) Information Retrieval, Hypermedia and the Web
- COMP30391 (10) Knowledge Representation
- COMP30432 (10) Computer Vision
- MSEC31122 (10) Managing Finance in Enterprises for Computer Scientists
- COMP30202 (10) From Transistors to Systems-on-Chip
- COMP37341 (10) Semantic Web

You may choose between 0 and 20 credits from the following course units

- BMAN30741 (10) Requirements Engineering
- BMAN30034 (10) Technological Development in the Network Society
- BMAN30732 (10) IT Architecture

Optional – 0 Credits

You may choose between 0 and 20 credits for the following list of external units. If you wish to choose a different external unit please see your year tutor.

- ECON20120 (20) Mathematical Economics
- HSTM20282 (10) Computing, History and Culture
- MSEC31131 (10) Enterprise Management for Computer Scientists
- MSEC31122 (10) Managing Finance in Enterprises for Computer Scientists
- ULP20010 (20) Intermediate Spanish
- ULI20010 (20) Intermediate Italian
- ULJA20010 (20) Intermediate Japanese
- ULFR20010 (20) Intermediate French
- MSEC30052 (10) Sustainable Development for Engineers and Scientists

YEAR 3

120 CREDITS

Mandatory – 50 Credits

You must take the following course units totaling 50 credits

- COMP30900 (30) Third Year Project Laboratory
- COMP30061 (10) Applying UML and Patterns
- MSEC31131 (10) Enterprise Management for Computer Scientists

Optional – 70 Credits

You must choose 20 credits from the following course units

- COMP20032 (10) Distributed Computing
- COMP20072 (10) Computer Graphics
- COMP2042 (10) Logic in Computer Science
- COMP20442 (10) Artificial Intelligence Programming
- COMP20252 (10) Mobile Systems
MEng (Hons) Software Engineering

**YEAR 2**

**120 CREDITS**

**Mandatory – 90 Credits**

You must take the following course units totaling 90 credits

- COMP20910 (20) Practical and transferable skills
- COMP20021 (10) Imperative programming with C and C++
- COMP20051 (10) Operating Systems
- COMP20341 (10) Software Engineering I
- COMP20012 (10) Introduction to Algorithms and Data Structures
- COMP20312 (10) Fundamentals of Databases
- COMP20081 (10) Computer Networks
- COMP20352 (10) Software Engineering II

**Optional – 30 Credits**

You must choose 10 credits from the following course units

- COMP20121 (10) The Implementation and Power of Computer Languages
- COMP20241 (10) VLSI System Design
- COMP20411 (10) Subsymbolic Processing and Neural Networks

**YEAR 3**

**120 CREDITS**

**Mandatory – 60 Credits**

You must take the following course unit totaling 60 credits

- COMP30900 (30) Third Year Project Laboratory
- COMP30061 (10) Applying UML and Patterns
- MSEC31131 (10) Enterprise Management for Computer Scientists
- MSEC31122 (10) Managing Finance in Enterprises for Computer Scientists

**Optional – 60 Credits**

You must choose between 30 and 50 credits from the following course units

- COMP30141 (10) Compilers
- COMP30311 (10) Advanced Databases
- COMP30332 (10) Software Evolution
- COMP30341 (10) Model-Based Software Design
- COMP37310 (20) Management Support Systems
- COMP37321 (10) Modern Software Engineering Practice
- COMP37332 (10) Data Integration and Analysis

You must choose between 30 and 10 credits from the following course units

- COMP30071 (10) Advanced Computer Graphics
- COMP30092 (10) Digital Wireless Communication and Networks
- COMP30151 (10) Understanding Programming Languages
- COMP30191 (10) Theory of Games and Games Models
- COMP30251 (10) Optical Computing
- COMP30291 (10) Digital Media Processing
- COMP30352 (10) Information Retrieval, Hypermedia and the Web
- COMP30412 (10) Knowledge Representation
- COMP30421 (10) Natural Language Engineering
- COMP30002 (10) High Performance Microprocessors
- COMP30052 (10) Distributed Operating Systems
- COMP30112 (10) Concurrency
- COMP30172 (10) Advanced Algorithms
- COMP30222 (10) Quantum Computing
- COMP30322 (10) Computer Vision
- COMP30202 (10) From Transistors to Systems-on-Chip
- COMP37412 (10) Dialogue Systems
- COMP37341 (10) Semantic Web

You may choose between 0 and 20 credits from the following course units

- BMAN30741 (10) Requirements Engineering
- BMAN30034 (10) Technological Development in the Network Society
- BMAN30732 (10) IT Architecture
BSc (Hons) Software Engineering (Former Informatics)

YEAR 2
120 CREDITS

Mandatory – 120 Credits

You must take the following course unit totaling 120 credits

- BMAN20162 (10) Business Database Design and Development
- BMAN20871 (10) User Centred Design
- BMAN20880 (20) Information Systems and Business Process Modelling
- COMP27310 (20) Software Engineering 2
- COMP27010 (20) Object Oriented Programming 2
- COMP20012 (10) Introduction to Algorithms and Data Structures
- COMP27900 (20) Systems Integration
- CARS20011 (10) Career and Professional Development

YEAR 3
120 CREDITS

Mandatory – 80 Credits

You must take the following course units totaling 80 credits

- COMP37900 (40) Third Year Project
- BMAN30801 (10) IS & Professional Issues
- BMAN30741 (10) Requirements Engineering Practice
- COMP37321 (10) Modern Software Engineering Practice
- COMP30332 (10) Software Evolution

Optional – 40 Credits

You may choose between 30 and 40 credits from the following course units

- COMP37332 (10) Data Integration and Analysis
- COMP30311 (10) Advanced Databases
- COMP37412 (10) Dialogue Systems
- BMAN30034 (20) MIS and Networked Society
- COMP30061 (10) Applying UML and Patterns
- COMP30341 (10) Model-Based Software Design
- COMP30352 (10) Information Retrieval, Hypermedia and the Web
- COMP30341 (10) Semantic Web
- COMP30321 (10) IT Architecture
- COMP30421 (10) Natural Language Engineering

You may choose between 0 and 10 credits from the following

- MSEC31131 (10) Enterprise Management
- MSEC31122 (10) Managing Finance in Enterprise
- MSEC30052 (10) Sustainable Development for Engineers and Scientists
**BSc (Hons) Artificial Intelligence (and with Industrial Experience)**

**YEAR 2**

120 CREDITS

**Mandatory – 70 Credits**

You must take the following course units totaling 70 credits

- COMP20910 (20) Practical and transferable skills
- COMP20012 (10) Introduction to Algorithms and Data Structures
- COMP20142 (10) Logic in Computer Science
- COMP20341 (10) Software Engineering I
- COMP20411 (10) Subsymbolic Processing and Neural Networks
- COMP20442 (10) Artificial Intelligence Programming

**Optional – 50 Credits**

You must choose 50 credits from the following course units

- COMP20021 (10) Imperative programming with C and C++
- COMP20032 (10) Distributed Computing
- COMP20051 (10) Operating Systems
- COMP20072 (10) Computer Graphics
- COMP20081 (10) Computer Networks
- COMP20121 (10) The Implementation and Power of Computer Languages
- COMP20212 (10) Digital Design Techniques
- COMP20241 (10) VLSI System Design
- COMP20312 (10) Fundamentals of Databases
- COMP20352 (10) Software Engineering II
- COMP20252 (10) Mobile Systems

**YEAR 3**

120 CREDITS

**Mandatory – 30 Credits**

You must take the following course unit totaling 30 credits

- COMP30900 (30) Third Year Project Laboratory

**Optional – 90 Credits**

You must choose a minimum of 20 credits and may choose a maximum of 40 credits from the following

- COMP30421 (10) Natural Language Engineering
- COMP30432 (10) Computer Vision
- COMP30412 (10) Knowledge Representation
- COMP37412 (10) Dialogue Systems

You may choose between 40 and 70 credits from the following course units

- COMP30022 (10) From Transistors to Systems-on-Chip
- COMP30121 (10) The Implementation and Power of Computer Languages
- COMP30141 (10) Compilers
- COMP30151 (10) Understanding Programming Languages
- COMP30172 (10) Advanced Algorithms
- COMP30191 (10) Theory of Games and Games Models
- COMP30222 (10) Quantum Computing
- COMP30251 (10) Optical Computing
- COMP30291 (10) Digital Media Processing
- COMP30311 (10) Advanced Databases
- COMP30341 (10) Model-Based Software Design
- COMP30352 (10) Information Retrieval, Hypermedia and the Web
- MSEC31122 (10) Managing Finance in Enterprises for Computer Scientists
- MSEC31131 (10) Enterprise Management for Computer Scientists
- COMP30332 (10) Software Evolution
- COMP30202 (10) From Transistors to Systems-on-Chip
- COMP37332 (10) Data Integration and Analysis
- COMP37321 (10) Modern Software Engineering Practice
- COMP37310 (20) Management Support Systems
- COMP37341 (10) Semantic Web

You may choose between 0 and 20 credits from the following course units

- BMAN30741 (10) Requirements Engineering
- BMAN30034 (10) Technological Development in the Network Society
- BMAN30732 (10) IT Architecture

You may choose between 0 and 20 credits from the following course units

- ECON20120 (20) Mathematical Economics
- HSTM20282 (10) Computing, History and Culture
- ULSP20010 (20) Intermediate Spanish
- ULIT20010 (20) Intermediate Italian
- ULJA20010 (20) Intermediate Japanese
- ULFR20010 (20) Intermediate French
- MSEC30052 (10) Sustainable Development for Engineers and Scientists
MEng (Hons) Artificial Intelligence

**Mandatory – 80 Credits**

You must take the following course units totaling 80 credits
- COMP20910 (20) Practical and transferable skills
- COMP20012 (10) Introduction to Algorithms and Data Structures
- COMP20142 (10) Logic in Computer Science
- COMP20341 (10) Software Engineering I
- COMP20442 (10) Artificial Intelligence Programming
- COMP20081 (10) Computer Networks

**Optional – 40 Credits**

You must choose 20 credits from the following course units
- COMP20021* (10) Imperative programming with C and C++
- COMP20051 (10) Operating Systems
- COMP20121 (10) The Implementation and Power of Computer Languages
- COMP20241 (10) VLSI System Design
- *recommended choice

**YEAR 2**

120 CREDITS

**Mandatory – 40 Credits**

You must take the following course unit totaling 40 credits
- COMP30900 (30) Third Year Project Laboratory
- MSEC31131 (10) Enterprise Management

**Optional – 60 Credits**

You must choose 20 credits from the following course units
- COMP30032 (10) Distributed Computing
- COMP30072 (10) Computer Graphics
- COMP20212 (10) Digital Design Techniques
- MSEC31122 (10) Managing Finances in Enterprises

**YEAR 3**

120 CREDITS

**Mandatory – 40 Credits**

You must choose between 20 and 30 credits from the following
- COMP30412 (10) Knowledge Representation
- COMP30421 (10) Natural Language Engineering
- COMP30432 (10) Computer Vision

**Optional – 60 Credits**

You must choose 20 credits from the following course units
- COMP30061 (10) Applying UML and Patterns
- COMP30071 (10) Advanced Computer Graphics
- COMP30092 (10) Digital Wireless Communication Networks
- COMP30151 (10) Understanding Programming Languages
- COMP30191 (10) Theory of Games and Games Models
- COMP30251 (10) Optical Computing
- COMP30311 (10) Advanced Databases
- COMP30332 (10) Software Evolution
- COMP30002 (10) High Performance Microprocessors
- COMP30082 (10) Cryptography and Network Security
- COMP30112 (10) Concurrency
- COMP30142 (10) Compilers
- COMP30172 (10) Advanced Algorithms
- COMP30222 (10) Quantum Computing
- COMP30291 (10) Digital Media Processing
- COMP30352 (10) Information Retrieval, Hypermedia and the Web
- MSEC31122 (10) Managing Finances in Enterprises
- COMP30202 (10) From Transistors to Systems-on-Chip
- COMP30332 (10) Data Integration and Analysis
- COMP30412 (10) Dialogue Systems
- COMP30321 (10) Modern Software Engineering Practice
- COMP30310 (20) Management Support Systems

You may choose between 0 and 20 credits from the following course units
- BMAN30741 (10) Requirements Engineering
- BMAN30034 (10) Technological Development in the Network Society
- BMAN30732 (10) IT Architecture
BSc (Hons) Computing for Business Applications (and with Industrial Experience)

**YEAR 2**

Mandatory – 120 Credits

You must take the following course units totaling 120 credits:

- BMAN20880 (20) Information Systems and Business Process Modelling
- COMP20012 (10) Introduction to Algorithms and Data Structures
- BMAN20162 (10) Business Database Design and Development
- BMAN20871 (10) User Centred System Design
- COMP27010 (20) Object Oriented Programming 2
- COMP27310 (20) Software Engineering 2
- COMP27900 (20) Systems Integration
- CARS20011 (10) Careers and Professional Development

**YEAR 3**

Mandatory – 80 Credits

You must take the following course unit totaling 80 credits:

- COMP37310 (20) Management Support Systems
- BMAN30801 (10) IS & Professional Issues
- COMP37900 (40) Third Year Project
- BMAN30741 (10) Requirements Engineering

Optional – 40 Credits

You may choose between 30 and 40 credits from the following:

- COMP37332 (10) Data Integration and Analysis
- COMP30311 (10) Advanced Databases
- COMP37412 (10) Dialogue Systems
- BMAN30034 (20) Technological Development in the Network Society
- COMP30061 (10) Applying UML and Patterns
- COMP30341 (10) Model-Based Software Design
- COMP30332 (10) Software Evolution
- COMP37321 (10) Modern Software Engineering Practice
- BMAN30732 (10) IT Architecture
- COMP30421 (10) Natural Language Engineering

You may choose between 0 and 10 credits from the following:

- MSEC31131 (10) Enterprise Management
- MSEC31122 (10) Managing Finance in Enterprise
- MSEC30052 (10) Sustainable Development for Engineers and Scientists
### BSc (Hons) Internet Computing (and with Industrial Experience)

**YEAR 2**

**120 CREDITS**

**Mandatory – 80 Credits**

You must take the following course units totaling 80 credits:

- COMP27020 (20) Web Technology and Practice 2
- COMP20012 (10) Introduction to Algorithms and Data Structures
- BMAN20162 (10) Business Database Design and Development
- BMAN20871 (10) User Centred System Design
- COMP27010 (20) Object Orientated Programming 2
- CARs20011 (10) Career and Professional Development
- COMP27310 (20) Software Engineering 2
- COMP27900 (20) Systems Integration

**Optional – 40 Credits**

You may choose between 30 and 40 credits from the following:

- COMP37332 (10) Data Integration and Analysis
- COMP30311 (10) Advanced Databases
- COMP37412 (10) Dialogue Systems
- BMAN30034 (20) Technological Development in the Network Society
- COMP30061 (10) Applying UML and Patterns
- COMP30341 (10) Model-Based Software Design
- COMP30332 (10) Software Evolution
- COMP37321 (10) Modern Software Engineering Practice
- BMAN30732 (10) IT Architecture
- COMP30421 (10) Natural Language Engineering

**YEAR 3**

**120 CREDITS**

**Mandatory – 80 Credits**

- COMP37341 (10) Semantic Web
- BMAN30801 (10) IS & Professional Issues
- COMP37900 (40) Third Year Project
- BMAN30741 (10) Requirements Engineering
- COMP30352 (10) Information Retrieval, Hypermedia and the Web

**Optional – 40 Credits**

You may choose between 30 and 40 credits from the following:

- COMP37332 (10) Data Integration and Analysis
- COMP30311 (10) Advanced Databases
- COMP37412 (10) Dialogue Systems
- BMAN30034 (20) Technological Development in the Network Society
- COMP30061 (10) Applying UML and Patterns
- COMP30341 (10) Model-Based Software Design
- COMP30332 (10) Software Evolution
- COMP37321 (10) Modern Software Engineering Practice
- BMAN30732 (10) IT Architecture
- COMP30421 (10) Natural Language Engineering

**YEAR 3**

**120 Credits**

**Mandatory – 120 Credits**

You must take the following course units totaling 120 credits:

- COMP27020 (20) Web Technology and Practice 2
- COMP20012 (10) Introduction to Algorithms and Data Structures
- BMAN20162 (10) Business Database Design and Development
- BMAN20871 (10) User Centred System Design
- COMP27010 (20) Object Orientated Programming 2
- CARs20011 (10) Career and Professional Development
- COMP27310 (20) Software Engineering 2
- COMP27900 (20) Systems Integration
### BSc (Hons) Computer Science with Business and Management (and with Industrial Experience)

#### Mandatory – 60 Credits

You must take the following course units totaling 60 credits:

- COMP20910 (20) Practical and transferable skills
- COMP20021 (10) Imperative programming with C and C++
- COMP20341 (10) Software Engineering I
- COMP20012 (10) Introduction to Algorithms and Data Structures
- BMAN10621 (10) Fundamentals of Financial Reporting
- BMAN10632 (10) Fundamentals of Accounting
- BMAN21012 (10) Global Contexts of Business and Management

#### Optional – 60 Credits

You must choose 50 credits from the following course units:

- COMP20061 (10) Applying UML and Patterns
- COMP20071 (10) Advanced Computer Graphics
- COMP20081 (10) Computer Networks
- COMP20121 (10) The Implementation and Power of Computer Languages
- COMP20411 (10) Subsymbolic Processing and Neural Networks
- COMP20051 (10) Operating Systems

#### Year 2

**120 Credits**

##### Mandatory – 80 Credits

You must take the following course units totaling 80 credits:

- COMP20910 (20) Practical and transferable skills
- COMP20021 (10) Imperative programming with C and C++
- COMP20341 (10) Software Engineering I
- COMP20012 (10) Introduction to Algorithms and Data Structures
- BMAN10621 (10) Fundamentals of Financial Reporting
- BMAN10632 (10) Fundamentals of Accounting
- BMAN21012 (10) Global Contexts of Business and Management

##### Optional – 40 Credits

You must choose 20 credits from the following course units:

- COMP20081 (10) Computer Networks
- COMP20121 (10) The Implementation and Power of Computer Languages
- COMP20411 (10) Subsymbolic Processing and Neural Networks
- COMP20051 (10) Operating Systems

#### Year 3

**120 Credits**

##### Mandatory – 60 Credits

You must take the following course unit totaling 60 credits:

- COMP30910 (20) Third Year Project Laboratory
- BMAN30010 (20) Management and Technology
- BMAN30021 (10) Marketing
- BMAN30022 (10) Strategy

##### Optional – 60 Credits

You must choose 50 credits from the following course units:

- BMAN31031 (10) Organisational Analysis
- BMAN30042 (10) Human resource management

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**IF YOU WISH TO TAKE AN EXTERNAL COURSE UNIT THAT IS NOT LISTED YOU MUST GET PERMISSION FROM YOUR YEAR TUTOR.**
BSc (Hons) Computer Science and Maths (and with Industrial Experience)

**Mandatory – 60 Credits**

You must take the following course units totaling 60 credits:
- COMP20012 (10) Introduction to Algorithms and Data Structures
- COMP20341 (10) Software Engineering I
- COMP20920 (10) Practical and Transferable Skills
- MATH20111 (10) Real Analysis
- MATH20201 (10) Algebraic Structures I
- MATH20142 (10) Complex Analysis

**YEAR 2 120 CREDITS**

You must choose 30 credits from the following course units:
- MATH20411 (10) Partial Differential Equations and Vector Calculus
- MATH20122 (10) Metric Spaces
- MATH20212 (10) Algebraic Structures II
- MATH20302 (10) Propositional Logic
- MATH20602 (10) Numerical Analysis I
- MATH20902 (10) Discrete Mathematics
- MATH20912 (10) Introduction to Financial Mathematics

If you wish to choose any other MATH unit please contact Dr Len Freeman

You must take a minimum of 30 and a maximum of 50 credits from the following:
- COMP10112 (10) Reasoning about programs
- COMP10412 (10) Artificial Intelligence Fundamentals
- COMP20142 (10) Logic in Computer Science
- COMP20021 (10) Imperative Programming with C and C++
- COMP20072 (10) Computer Graphics
- COMP20081 (10) Computer Networks
- COMP20121 (10) The Implementation and Power of Computer Languages
- COMP20411 (10) Subsymbolic Processing and Neural Networks
- COMP20442 (10) Artificial Intelligence Programming

**Optional – 100 Credits**

**YEAR 3 120 CREDITS**

You must choose 30 credits from the following course units:
- COMP30071 (10) Advanced Computer Graphics
- COMP30151 (10) Understanding Programming Languages
- COMP30191 (10) Theory of Games and Games Models
- COMP30251 (10) Optical Computing
- COMP30341 (10) Model-Based Software Design
- COMP30421 (10) Natural Language Engineering
- COMP30002 (10) High Performance Microprocessors
- COMP30052 (10) Distributed Operating Systems
- COMP30112 (10) Concurrency
- COMP30141 (10) Compilers
- COMP30222 (10) Quantum Computing
- COMP30432 (10) Computer Vision
- COMP30172 (10) Advanced Algorithms

Optional – 60 Credits

You must take the following course units totaling 60 credits:
- COMP30910 (20) Third Year Project Laboratory

You must take the following course units totaling 20 credits:
- COMP30920 (10) Practical and Transferable Skills
- MATH20111 (10) Real Analysis
- MATH20201 (10) Algebraic Structures I
- MATH20142 (10) Complex Analysis

You must take the following course units totaling 20 credits:
- COMP10112 (10) Reasoning about programs
- COMP20142 (10) Logic in Computer Science
- COMP20021 (10) Imperative Programming with C and C++
- COMP20072 (10) Computer Graphics
- COMP20081 (10) Computer Networks
- COMP20121 (10) The Implementation and Power of Computer Languages
- COMP20411 (10) Subsymbolic Processing and Neural Networks
- COMP20442 (10) Artificial Intelligence Programming

You must choose 30 credits from the following course units:
- MATH20411 (10) Partial Differential Equations and Vector Calculus
- MATH20122 (10) Metric Spaces
- MATH20212 (10) Algebraic Structures II
- MATH20302 (10) Propositional Logic
- MATH20602 (10) Numerical Analysis I
- MATH20902 (10) Discrete Mathematics
- MATH20912 (10) Introduction to Financial Mathematics

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If you wish to choose any other MATH unit please contact Dr Len Freeman