

## UG Student Handbook - Appendix B

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### B1. Single Honours Programmes – Computer Science

**G400 BSc (Hons) Computer Science**

**G401 MEng (Hons) Computer Science**

**G403 BSc (Hons) Computer Science with a Year in Industry**

**G404 MEng (Hons) Computer Science with a Year in Industry**

All of the programmes offered by the Department require students to take 120 credits in each year of study. This consists of required, optional and mandatory modules.

From 2017/18, every student on the Computer Science programmes takes the following required modules:

<ul style="list-style-type: none"> <li>• COMP101 or COMP105</li> <li>• COMP107</li> <li>• COMP108</li> <li>• COMP109</li> <li>• COMP111</li> <li>• COMP116</li> <li>• COMP122</li> <li>• COMP124</li> </ul>	<ul style="list-style-type: none"> <li>• COMP201</li> <li>• COMP207</li> <li>• COMP202</li> <li>• COMP208</li> </ul>	<ul style="list-style-type: none"> <li>• COMP390 (mandatory)</li> </ul>
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For Year in Industry/MEng students the following modules are also required

Year in Industry	MEng only
<ul style="list-style-type: none"> <li>• COMP299</li> <li>• COMP221 (mandatory)</li> </ul>	<ul style="list-style-type: none"> <li>• COMP591 (mandatory)</li> <li>• COMP592 (mandatory)</li> </ul>

You can choose to maintain a mixture of modules throughout your degree or follow a specialism pathway in

- **Artificial Intelligence**
- **Algorithms and Optimisation**
- **Data Science**

<p>For the <b>Artificial Intelligence</b> specialism pathway <u>in addition</u> to the required modules listed above students should take</p> <ul style="list-style-type: none"> <li>• COMP219</li> </ul> <p>and take at least one of the following</p> <ul style="list-style-type: none"> <li>• COMP218</li> <li>• COMP222</li> </ul> <p>and in Year 3 (or Year 4 for Year in Industry programmes)</p>	<p>For the <b>Algorithms and Optimisation</b> specialism pathway <u>in addition</u> to the required modules listed above, students should take at least 30 credits from</p> <ul style="list-style-type: none"> <li>• COMP218</li> <li>• COMP220</li> <li>• COMP226</li> <li>• COMP284</li> <li>• COMP285</li> </ul> <p>and at least 60 credits from</p> <ul style="list-style-type: none"> <li>• COMP305</li> </ul>	<p>For the <b>Data Sciences</b> specialism pathway <u>in addition</u> to the required modules students should take</p> <ul style="list-style-type: none"> <li>• COMP219</li> <li>• COMP281</li> <li>• COMP284</li> </ul> <p>and get at least 60 credits from</p> <ul style="list-style-type: none"> <li>• COMP310</li> <li>• COMP313</li> <li>• COMP318</li> <li>• COMP329</li> </ul>
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<p>take at least four modules from</p> <ul style="list-style-type: none"> <li>• COMP304</li> <li>• COMP305</li> <li>• COMP310</li> <li>• COMP313</li> <li>• COMP318</li> <li>• COMP329</li> </ul> <p>MEng only Year 4 (or Year 5 for Year in Industry programmes) should take 60 credits from</p> <ul style="list-style-type: none"> <li>• COMP521</li> <li>• COMP522</li> <li>• COMP523</li> <li>• COMP528</li> <li>• COMP529</li> <li>• COMP524</li> <li>• COMP525</li> <li>• COMP526</li> <li>• COMP527</li> <li>• COMP575</li> <li>• COMP532</li> </ul>	<ul style="list-style-type: none"> <li>• COMP309</li> <li>• COMP323</li> <li>• COMP324</li> <li>• COMP326</li> <li>• COMP331</li> </ul> <p>MEng only Year 4 (or Year 5 for Year in Industry programmes) should take 60 credits from</p> <ul style="list-style-type: none"> <li>• COMP521</li> <li>• COMP522</li> <li>• COMP523</li> <li>• COMP528</li> <li>• COMP529</li> <li>• COMP524</li> <li>• COMP525</li> <li>• COMP526</li> <li>• COMP527</li> <li>• COMP575</li> <li>• COMP532</li> </ul>	<ul style="list-style-type: none"> <li>• COMP331</li> <li>• ELEC319</li> <li>• ELEC320</li> </ul> <p>MEng only Year 4 (or Year 5 for Year in Industry programmes) should take 60 credits from</p> <ul style="list-style-type: none"> <li>• COMP521</li> <li>• COMP522</li> <li>• COMP523</li> <li>• COMP528</li> <li>• COMP529</li> <li>• COMP524</li> <li>• COMP525</li> <li>• COMP526</li> <li>• COMP527</li> <li>• COMP575</li> <li>• COMP532</li> </ul>
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More detailed information can be found in the Programme Specifications, students are welcome to contact the Student Office for more details about this. The structure for G403 BSc (Hons) Computer Science with a Year in Industry (without specialism pathways) has been included below as an example.

(●) indicates a required module and (+) indicates a mandatory module

G400/G401/G403/G404 YEAR 1						
Module Code	Module Title	Credit Value	Level	Co-requisite	Pre-requisites	Pre-requisite for*
Semester 1						
COMP101 or COMP105	Introduction to Programming (●)  Programming Language Paradigms (●)	15  15	4  4	-  -	-  A-level Computer Science expected	COMP122  COMP122
COMP107	Graduates for the Digital Society (●)	15	4	-	-	COMP201, COMP207, COMP208, COMP221, COMP283, COMP284, COMP390

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<b>G400/G401/G403/G404 YEAR 1</b>						
COMP109	Foundations of Computer Science (•)	15	4	-	-	COMP218, COMP304, COMP313
COMP111	Introduction to Artificial Intelligence (•)	15	4	-	-	COMP219, COMP222, COMP304, COMP310, COMP329
Semester 2						
COMP108	Data Structures and Algorithms (•)	15	4	-	-	COMP202, COMP208, COMP218
COMP116	Analytical Techniques in Computer Science (•)	15	4	-	-	COMP202, COMP219, COMP226, COMP305, COMP323, COMP326, COMP331
COMP122	Object-Oriented Programming (•)	15	4	-	COMP101 or COMP105	COMP201, COMP207, COMP220, COMP211, COMP212, COMP222, COMP281, COMP284, COMP285, COMP208, COMP327, COMP390
COMP124	Computer Systems (•)	15	4	-	-	COMP208, COMP211, COMP212, COMP327, COMP329

\*May also be a pre-requisite for modules on other programmes

<b>G400/G401/G403/G404 YEAR 2</b>						
Module Code	Module Title	Credit Value	Level	Co-requisite	Pre-requisite	Pre-requisite for*
Semester 1						
COMP201	Software Engineering I (•)	15	5	-	COMP122, COMP107	COMP208, COMP220, COMP285, COMP319, COMP313
COMP207	Database Development (•)	15	5	-	COMP122, COMP107	COMP208, COMP283, COMP284, COMP315
<b>G403/G404 only</b>						
COMP221	Planning Your Career (+)	7.5	5	-	COMP107	-
<i>Plus options totalling 30 to 37.5 credits from the following modules provided pre-requisites are satisfied</i>						
COMP105**	Programming Language Paradigms	15	4	-	-	-

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COMP211	Internet Principles	15	5	-	COMP122, COMP124	COMP212, COMP318
COMP219	Artificial Intelligence	15	5	-	COMP116, COMP111 or equivalent	COMP305, COMP313, COMP318, COMP329
COMP221	Planning Your Career	7.5	5	-	COMP107	-
Semester 2						
COMP202	Complexity of Algorithms (•)	15	5	-	COMP108, COMP116	COMP309, COMP324
COMP208	Group Software Project (•)	15	5	-	COMP108, COMP107, COMP124, COMP122, or equivalents; COMP201; COMP207; or equivalent	COMP390
<i>Plus options totalling 22.5 to 30 credits from the following modules provided pre-requisites are satisfied</i>						
COMP212	Distributed Systems	15	5	-	COMP122, COMP124, COMP211	COMP318
COMP218	Decision, Computation and Language	15	5	-	COMP108 COMP109	-
COMP220* <sup>1</sup>	Software Development Tools	15	5	-	COMP122; COMP201;	-
COMP222	Principles of Computer Game Design and Implementation	15	5	-	COMP122, COMP111	-
COMP226	Computer-Based Trading in Financial Markets	15	5	-	COMP116	-
COMP281	Principles of C and Memory Management	7.5	5	-	COMP122	COMP282 COMP327
COMP282	Advanced Object Oriented C Languages	7.5	5	-	COMP281	COMP327
COMP283	Applied Database Management	7.5	5	-	COMP107 COMP207	-
COMP284	Scripting Languages	7.5	5	-	COMP122 COMP107 COMP207	-
COMP285* <sup>1</sup>	Computer Aided Software Development	7.5	5	-	COMP122 COMP201	-

\*May also be a pre-requisite for modules on other programmes

\*\*COMP105 cannot be taken again, if already taken in Year 1

\*<sup>1</sup>COMP220 and COMP285 cannot be taken in conjunction.

G403/G404 YEAR 3						
Module Code	Module Title	Credit Value	Level	Co-requisite	Pre-requisites	Pre-requisite for
Semester 1 and 2						
COMP299	Industrial Placement Year 3	120	5	-	COMP221	-

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G400/G403 FINAL YEAR & G401/G404 YEAR 4						
Module Code	Module Title	Credit Value	Level	Co-requisite	Pre-requisites	Pre-requisite for*
Semester 1 and 2						
COMP390	Honours Year Computer Science Project (+)	30	6	-	COMP122, COMP107 or equivalents, COMP208 and COMP108 recommended	-
Semester 1						
<i>Plus options totalling 30 credits from the following modules provided pre-requisites are satisfied</i>						
COMP304	Knowledge Representation and Reasoning	15	6	-	COMP109, COMP111	-
COMP305	Biocomputation	15	6	-	COMP116, COMP219	-
COMP309	Efficient Sequential Algorithms	15	6	-	COMP202	-
COMP319	Software Engineering II	15	6	-	COMP201	-
COMP323	Introduction to Computational Game Theory	15	6	-	COMP116 or equivalent mathematical module	COMP326
COMP327	Mobile Computing	15	6	-	COMP122, COMP124, COMP281, COMP282	-
COMP329	Robotics and Autonomous Systems	15	6	-	COMP111, COMP124, COMP219	-
COMP331	Optimisation	15	6	-	COMP116	-
ELEC319	Image Processing	7.5	6	-	-	-
Semester 2						
<i>Plus options totalling 45 credits from the following modules provided pre-requisites are satisfied</i>						
COMP310	Multi-Agent Systems	15	6	-	COMP111	-
COMP313	Formal Methods	15	6	-	COMP109, COMP201, COMP219	-
COMP315	Technologies for E-Commerce	15	6	-	COMP207	-
COMP318	Advanced Web Technologies	15	6	-	COMP211, COMP212, COMP219	-
COMP324	Complex Social Networks	15	6	-	COMP202	-
COMP326	Computational Game Theory and Mechanism Design	15	6	-	COMP116, COMP323	-
ELEC320	Neural Networks	7.5	6	-	-	-
Semester 1 and 2						
COMP335***	Communicating Computer Science	15	6	-	-	-

\*May also be a pre-requisite for modules on other programmes

\*\*\*Students who wish to choose this module will undergo an interview with the Module Co-ordinator before being selected.

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<b>G401/G404 FINAL YEAR</b>						
<b>Module Code</b>	<b>Module Title</b>	<b>Credit Value</b>	<b>Level</b>	<b>Co-requisites</b>	<b>Pre-requisites</b>	<b>Pre-requisite for</b>
<b>Semester 1</b>						
COMP591	MEng Group Project (+)	30	7	-	Completion of first 3 years of MEng	-
<i>Plus options totalling 30 credits from the following four modules provided pre-requisites are satisfied</i>						
COMP521	Knowledge Representation	15	7	-	Completion of first 3 years of MEng	-
COMP522	Privacy and Security	15	7	-		-
COMP523	Advanced Algorithmic Techniques	15	7	-		-
COMP528	Multi-Core and Multi-Processor Programming	15	7	-		-
COMP529	Big Data Analysis	15	7	-		-
<b>Semester 2</b>						
COMP592	MEng Individual Project (+)	30	7	-	Completion of first 3 years of MEng	-
<i>Plus options totalling 30 credits from the following five modules provided pre-requisites are satisfied</i>						
COMP524	Safety and Dependability	15	7	-	Completion of first 3 years of MEng	-
COMP525	Reasoning about Action and Change	15	7	-		-
COMP526	Applied Algorithmics	15	7	-		-
COMP527	Data Mining and Visualisation	15	7	-		-
COMP575	Computational Intelligence	15	7	-		-
COMP532	Machine Learning and BioInspired Optimisation	15	7	-	COMP219 COMP310	-

**Note:**

In exceptional circumstances, and with the approval of the programme Director of Studies, alternative modules may be substituted for non-mandatory modules.

Students may undertake their second year of studies at Xian-Jiaotong Liverpool University (XJTLU), Suzhou, China.

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### B2. Single Honours Programmes - Software Development

- **G610 BSc (Hons) Software Development (to be phased out from 2018/19)**
- **G611 BSc (Hons) Software Development with a Year in Industry (to be phased out from 2018/19)**
- **GZ10 BSc (Hons) Computer Science with Software Development**
- **G61Z BSc (Hons) Computer Science with Software Development with a Year in Industry**

All of the programmes offered by the Department require students to take 120 credits in each year of study. This consists of required, optional and mandatory modules.

Every student on the Computer Science with Software Development programme takes the following required modules:

<ul style="list-style-type: none"> <li>• COMP101 or COMP105</li> <li>• COMP107</li> <li>• COMP108</li> <li>• COMP109</li> <li>• COMP111</li> <li>• COMP116</li> <li>• COMP122</li> <li>• COMP124</li> </ul>	<ul style="list-style-type: none"> <li>• COMP201</li> <li>• COMP207</li> <li>• COMP220</li> <li>• COMP208</li> </ul>	<ul style="list-style-type: none"> <li>• COMP390 (mandatory)</li> </ul>
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For Year in Industry students the following modules are also required:

- COMP299
- COMP221

In addition to the required modules listed above students should take

in Year 2 at least 30 credits from:	and in Year 3 (or Year 4 for the Year in Industry programme) take at least four modules from:
<ul style="list-style-type: none"> <li>• COMP211</li> <li>• COMP212</li> <li>• COMP219</li> <li>• COMP281</li> <li>• COMP282</li> <li>• COMP283</li> <li>• COMP284</li> </ul>	<ul style="list-style-type: none"> <li>• COMP310</li> <li>• COMP313</li> <li>• COMP318</li> <li>• COMP319</li> <li>• COMP323</li> <li>• COMP327</li> <li>• COMP329</li> </ul>

Included below is the programme structure for G611, which is G610 with a Year in Industry.

YEAR 1						
Module Code	Module Title	Credit Value	Level	Co-requisite	Pre-requisites	Pre-requisite for*
Semester 1						
COMP101 or	Introduction to Programming (•)	15	4	-	-	COMP122



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YEAR 1						
COMP105	Programming Language Paradigms (•)	15	4	-	A-level Computer Science expected	COMP122
COMP107	Graduates for the Digital Society (•)	15	4	-	-	COMP201, COMP207, COMP208, COMP221, COMP283, COMP284, COMP390
COMP109	Foundations of Computer Science (•)	15	4	-	-	COMP218, COMP304, COMP313
COMP111	Introduction to Artificial Intelligence (•)	15	4	-	-	COMP219, COMP222, COMP304, COMP310, COMP329
Semester 2						
COMP108	Data Structures and Algorithms (•)	15	4	-	-	COMP202, COMP208, COMP218
COMP116	Analytical Techniques in Computer Science (•)	7.5	4	-	-	COMP202, COMP219, COMP226, COMP305, COMP323, COMP326, COMP331
COMP122	Object-Oriented Programming (•)	15	4	-	COMP101 or COMP105	COMP201, COMP207, COMP220, COMP211, COMP212, COMP222, COMP281, COMP284, COMP285, COMP208, COMP327, COMP390
COMP124	Computer Systems (•)	15	4	-	-	COMP208, COMP211, COMP212, COMP327, COMP329

\*May also be a pre-requisite for modules on other programmes

YEAR 2						
Module Code	Module Title	Credit Value	Level	Co-requisite	Pre-requisite	Pre-requisite for*
Semester 1						
COMP201	Software Engineering I (•)	15	5	-	COMP122, COMP107	COMP208, COMP220, COMP285, COMP319, COMP313

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COMP207	Database Development (•)	15	5	-	COMP122, COMP107	COMP208, COMP283, COMP284, COMP315
<b>For G611 only</b>						
COMP221	Planning Your Career (+)	7.5	5	-	COMP107	-
<i>Plus options totalling 30 to 37.5 credits from the following modules provided pre-requisites are satisfied</i>						
COMP105**	Programming Language Paradigms	15	4	-	-	-
COMP211	Internet Principles	15	5	-	COMP122, COMP124	COMP212, COMP318
COMP219	Artificial Intelligence	15	5	-	COMP116, COMP111 or equivalent	COMP305, COMP313, COMP318, COMP329
COMP221	Planning Your Career	7.5	5	-	COMP107	-
<b>Semester 2</b>						
COMP220	Software Development Tools (•)	15	5	-	COMP122; COMP201;	-
COMP208	Group Software Project (•)	15	5	-	COMP108, COMP107, COMP124, COMP122, or equivalents; COMP201; COMP207;or equivalent	COMP390
<i>Plus options totalling 22.5 to 30 credits from the following modules provided pre-requisites are satisfied</i>						
COMP202	Complexity of Algorithms	15	5	-	COMP108, COMP116	COMP309, COMP324
COMP212	Distributed Systems	15	5	-	COMP122, COMP124, COMP211	COMP318
COMP218	Decision, Computation and Language	15	5	-	COMP108 COMP109	-
COMP222	Principles of Computer Game Design and Implementation	15	5	-	COMP122, COMP111	-
COMP226	Computer-Based Trading in Financial Markets	15	5	-	COMP116	-
COMP281	Principles of C and Memory Management	7.5	5	-	COMP122	COMP282 COMP327
COMP282	Advanced Object Oriented C Languages	7.5	5	-	COMP281	COMP327
COMP283	Applied Database Management	7.5	5	-	COMP107 COMP207	-

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COMP284	Scripting Languages	7.5	5	-	COMP122 COMP107 COMP207	-
COMP285* <sup>1</sup>	Computer Aided Software Development	7.5	5	-	COMP122 COMP201	-

\*May also be a pre-requisite for modules on other programmes

\*\*COMP105 cannot be taken again, if already taken in Year 1

YEAR 3						
Module Code	Module Title	Credit Value	Level	Co-requisite	Pre-requisites	Pre-requisite for
Semester 1 and 2						
COMP299	Industrial Placement Year 3	120	5	-	COMP110	-

Final Year						
Module Code	Module Title	Credit Value	Level	Co-requisite	Pre-requisites	Pre-requisite for
Semester 1 and 2						
COMP390	Honours Year Computer Science Project (+)	30	6	-	COMP122, COMP107 or equivalents, COMP208 and COMP108 recommended	-
Semester 1						
<i>Plus options totalling 30 credits from the following modules provided pre-requisites are satisfied</i>						
COMP304	Knowledge Representation and Reasoning	15	6	-	COMP109, COMP111	-
COMP305	Biocomputation	15	6	-	COMP116, COMP219	-
COMP309	Efficient Sequential Algorithms	15	6	-	COMP202	-
COMP319	Software Engineering II	15	6	-	COMP201	-
COMP323	Introduction to Computational Game Theory	15	6	-	COMP116 or equivalent mathematical module	COMP326
COMP327	Mobile Computing	15	6	-	COMP122, COMP124, COMP281, COMP282	-
COMP329	Robotics and Autonomous Systems	15	6	-	COMP111, COMP124, COMP219	-
COMP331	Optimisation	15	6	-	COMP116	-
ELEC319	Image Processing	7.5	6	-	-	-

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Semester 2						
<i>Plus options totalling 45 credits from the following modules provided pre-requisites are satisfied</i>						
COMP310	Multi-Agent Systems	15	6	-	COMP111	-
COMP313	Formal Methods	15	6	-	COMP109, COMP201, COMP219	-
COMP315	Technologies for E-Commerce	15	6	-	COMP207	-
COMP318	Advanced Web Technologies	15	6	-	COMP211, COMP212, COMP219	-
COMP324	Complex Social Networks	15	6	-	COMP202	-
COMP326	Computational Game Theory and Mechanism Design	15	6	-	COMP116, COMP323	-
ELEC320	Neural Networks	7.5	6	-	-	-
Semester 1 and 2						
COMP335***	Communicating Computer Science	15	6	-	-	-

*\*May also be a pre-requisite for modules on other programmes*

*\*\*\*Students who wish to choose this module will undergo an interview with the Module Co-ordinator before being selected.*

### Note:

In exceptional circumstances, and with the approval of the programme Director of Studies, alternative modules may be substituted for non-mandatory modules.

Students may undertake their second year of studies at Xian-Jiaotong Liverpool University (XJTLU), Suzhou, China.

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### B3. G40E MEng (Hons) Computer Science with Education (with recommendation for Qualified Teacher Status)

This is an opt-in programme after Year 2 and is in collaboration with Liverpool John Moores University. The aim of the programme is to produce graduates who will have a complete and systematic understanding of the domain of computer science while at the same time gaining Qualified Teacher Status. As such this will enable students who successfully complete the programme to take up a rewarding career as teachers of Computer Science in schools. The programme is also designed equip students with the necessary skills required with respect to careers open to general Computer Science graduates.

Year 1 (Level 4) and Year 2 (Level 5) are all 15 credit modules at University of Liverpool, unless indicated otherwise.

#### MEng Computer Science with Education, with a recommendation for Qualified Teacher Status (QTS)

##### Year 1

**COMP101** Introduction to Programming in Java

or

**COMP105** Programming Language Paradigms

**COMP107** Graduates for the Digital Society

**COMP109** Foundations of Computer Science

**COMP111** Introduction to Artificial Intelligence

**COMP108** Data Structures and Algorithms

**COMP116** Analytical Techniques in Computer Science

**COMP122** Object-Oriented Programming

**COMP124** Computer Systems

##### Year 2

**COMP201** Software Engineering

**COMP207** Software Development

Select 30 to 37.5 optional credits from

**COMP105**  
**COMP211**  
**COMP219**  
**COMP221 (7.5)**

**COMP202** Complexity of Algorithms

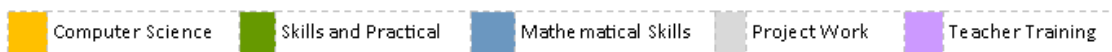
**COMP208** Group Software Project

Select 22.5 to 37.5 optional credits from

**COMP212**  
**COMP218**  
**COMP220**  
**COMP222**  
**COMP226**  
**COMP281 (7.5)**  
**COMP282 (7.5)**  
**COMP283 (7.5)**  
**COMP284 (7.5)**  
**COMP285 (7.5)**

##### Summer

Two weeks experience in a School



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In order to progress into Year 3, students must achieve an average of 55% in Year 2.

**MEng Computer Science with Education, with a recommendation for Qualified Teacher Status (QTS)**

### Year 3

**Initial Teaching Training  
60 credits Level 6 (Phase 1 &  
2 of ITT school based training)**

**6005ITTUG** Subject Pedagogy  
in Computer Science (20  
credits)

**6003ITTUG** Inclusion (20  
credits)

**6002ITTUG** Professional  
Practice (20 credits)

**Select 60 optional credits  
from**

**COMP310**

**COMP313**

**COMP315**

**COMP318**

**COMP324**

**COMP326**

**ELEC320**

### Year 4

**Initial Teaching Training 60 credits Level 7 (Phase 3 of ITT  
school based training)**

**7136SLTA** Learning and Teaching and Assessment in the 11-16  
context (20 credits)

**Select 30 optional credits  
from**

**COMP521**

**COMP522**

**COMP523**

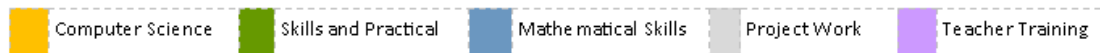
**COMP528**

**COMP529**

**7226SPRAC** Pedagogy in  
Practice (20 credits)

**7126SREF** Developing Profes-  
sional Reflective Practice  
(20 credits)

**COMP593** MEng Project, 30 credits, Level 7



In order to progress to Year 4, students must achieve an average of 55% in Year 3.

More detailed information can be found in the Programme Specification, please contact the Student Office ([csstudy@liv.ac.uk](mailto:csstudy@liv.ac.uk)) for further details.

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### B4. Single Honours and Joint Programmes

- **G402 BSc (Hons) Computing with a Year in Industry**
- **G490/G491 BSc (Hons) Electronic Commerce Computing/with a Year in Industry**
- **G500(G50A)/G502 BSc (Hons) Computer Information Systems/with a Year in Industry**
- **G50E(G501)/G503 BSc (Hons) Internet Computing/with a Year in Industry**
- **G700/G701 BSc (Hons) Artificial Intelligence/with a Year in Industry**
- **GG14(GG1A)/GG16 BSc (Hons) Mathematics with Computer Science/with a Year in Industry**
- **GN34/G3N4 BSc (Hons) Financial Computing/with a Year in Industry**

Please see below the programme structures taken from the Programme Specifications, from 2018/19 these programmes will be phased out to accommodate the new structures with specialism pathways drawn up during a review of the Year 1 and 2 programme provisions.

All of the programmes offered by the Department require students to take 120 credits in each year of study. This consists of required, optional and mandatory modules.

Every student takes the following required modules in Year 1:

- COMP101 or COMP105
- COMP107
- COMP108
- COMP109
- COMP111
- COMP116
- COMP122
- COMP124

COMP221 is a mandatory 7.5 credit pass/fail module for Year in Industry programmes, which is taken out of the degree classification calculations. Progression from Year 2 to Year 3 on the Year in Industry programmes is subject to passing all modules at the first sitting. Students who do not pass their modules at the first attempt, will get transferred to the equivalent programme without a year in industry.

The programme of study is split into years and semesters as follows.

module (●) indicates a required module and (+) indicates a mandatory module

<b>G402 YEAR 2</b>						
Module Code	Module Title	Credit Value	Level	Co-requisite	Pre-requisite	Pre-requisite for*
Semester 1						
COMP201	Software Engineering I (●)	15	5	-	COMP122, COMP107	COMP208, COMP220, COMP285, COMP319, COMP313

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COMP207	Database Development (•)	15	5	-	COMP122, COMP107	COMP208, COMP283, COMP284, COMP315
COMP221	Planning Your Career (+)	7.5	5	-	COMP107	-

*Plus options totalling 30 credits from the following modules provided pre-requisites are satisfied*

COMP105**	Programming Language Paradigms	15	4	-	-	-
COMP211	Internet Principles	15	5	-	COMP122, COMP124	COMP212, COMP318
COMP219	Artificial Intelligence	15	5	-	COMP116, COMP111 or equivalent	COMP305, COMP313, COMP318, COMP329

### Semester 2

COMP202	Complexity of Algorithms (•)	15	5	-	COMP108, COMP116	COMP309, COMP324
COMP208	Group Software Project (•)	15	5	-	COMP108, COMP107, COMP124, COMP122, or equivalents; COMP201; COMP207; or equivalent	COMP390

*Plus options totalling 22.5 credits from the following modules provided pre-requisites are satisfied*

COMP212	Distributed Systems	15	5	-	COMP122, COMP124, COMP211	COMP318
COMP218	Decision, Computation and Language	15	5	-	COMP108 COMP109	-
COMP220* <sup>1</sup>	Software Development Tools	15	5	-	COMP122; COMP201;	-
COMP222	Principles of Computer Game Design and Implementation	15	5	-	COMP122, COMP111	-
COMP226	Computer-Based Trading in Financial Markets	15	5	-	COMP116	-
COMP281	Principles of C and Memory Management	7.5	5	-	COMP122	COMP282 COMP327
COMP282	Advanced Object Oriented C Languages	7.5	5	-	COMP281	COMP327
COMP283	Applied Database Management	7.5	5	-	COMP107 COMP207	-
COMP284	Scripting Languages	7.5	5	-	COMP122 COMP107 COMP207	-
COMP285* <sup>1</sup>	Computer Aided Software Development	7.5	5	-	COMP122 COMP201	-



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\*May also be a pre-requisite for modules on other programmes

\*\*COMP105 cannot be taken again, if already taken in Year 1

\*<sup>1</sup>COMP220 and COMP285 cannot be taken in conjunction.

G402 YEAR 3						
Module Code	Module Title	Credit Value	Level	Co-requisite	Pre-requisites	Pre-requisite for
Semester 1 and 2						
COMP299	Industrial Placement Year 3	120	5	-	-	-

G402 YEAR 4						
Module Code	Module Title	Credit Value	Level	Co-requisite	Pre-requisites	Pre-requisite for
Semester 1 and 2						
COMP390	Honours Year Computer Science Project (+)	30	6	-	COMP122, COMP107 or equivalents, COMP208 and COMP108 recommended	-
Semester 1						
<i>Plus options totalling 45 credits from the following modules provided pre-requisites are satisfied*<sup>1</sup></i>						
COMP304	Knowledge Representation and Reasoning	15	6	-	COMP109, COMP111	-
COMP305	Biocomputation	15	6	-	COMP116, COMP219	-
COMP309	Efficient Sequential Algorithms	15	6	-	COMP202	-
COMP319	Software Engineering II	15	6	-	COMP201	-
COMP323	Introduction to Computational Game Theory	15	6	-	COMP116 or equivalent mathematical module	COMP326
COMP327	Mobile Computing	15	6	-	COMP122, COMP124, COMP281, COMP282	-
COMP329	Robotics and Autonomous Systems	15	6	-	COMP111, COMP124, COMP219	-
COMP331	Optimisation	15	6	-	COMP116	-
ELEC319	Image Processing	7.5	6	-	-	-
Semester 2						
<i>Plus options totalling 45 credits from the following modules provided pre-requisites are satisfied*<sup>1</sup></i>						
COMP310	Multi-Agent Systems	15	6	-	COMP111	-

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COMP313	Formal Methods	15	6	-	COMP109, COMP201, COMP219	-
COMP315	Technologies for E-Commerce	15	6	-	COMP207	-
COMP318	Advanced Web Technologies	15	6	-	COMP211, COMP212, COMP219	-
COMP324	Complex Social Networks	15	6	-	COMP202	-
COMP326	Computational Game Theory and Mechanism Design	15	6	-	COMP116, COMP323	-
ELEC320	Neural Networks	7.5	6	-	-	-
Semester 1 and 2						
COMP335***	Communicating Computer Science	15	6	-	-	-

*\*May also be a pre-requisite for modules on other programmes*

*\*\*\*Students who wish to choose this module will undergo an interview with the Module Co-ordinator before being selected.*

*\*<sup>1</sup>If ELEC319, ELEC320 or COMP335 are taken, an imbalance of 15 credits between the two semesters is allowed. 120 credits to be taken in Year 4.*

### Note:

In exceptional circumstances, and with the approval of the programme Director of Studies, alternative modules may be substituted for non-mandatory modules.

Students may undertake their second year of studies at Xian-Jiaotong Liverpool University (XJTLU), Suzhou, China.

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G490/G491 YEAR 2						
Module Code	Module Title	Credit Value	Level	Co-requisites	Pre-requisites	Pre-requisite for*
<b>Semester 1</b>						
COMP201	Software Engineering I (●)	15	5	-	COMP122 COMP107	COMP215, COMP220, COMP285, COMP319, COMP313
COMP207	Database Development (●)	15	5	-	COMP122 COMP107	COMP215, COMP283, COMP284, COMP315
COMP211	Internet Principles (+)	15	5	-	COMP122 COMP124	COMP212, COMP318
<b>For G491 only</b>						
COMP221	Planning Your Career (+)	7.5	5	-	COMP107	-
<i>Plus options totalling 15 to 22.5 credits*<sup>1</sup> from the following modules provided pre-requisites are satisfied</i>						
COMP105*	Programming Language Paradigms	15	4	-	-	-
COMP219	Artificial Intelligence	15	5	-	COMP116 COMP111 or equivalent	COMP305, COMP313, COMP329
COMP221	Planning Your Career	7.5	5	-	COMP107	-
<b>Semester 2</b>						
COMP212	Distributed Systems (●)	15	5	-	COMP122, COMP124, COMP211	COMP318
COMP215	Group Software Project (●)	15	5	-	COMP108, COMP107, COMP124, COMP122 or equivalents; COMP201; COMP207 or equivalent	COMP394
COMP220	Software Development Tools (●)	15	5	-	COMP122 COMP201	-
<i>Plus options totalling 7.5 to 15 credits*<sup>1</sup> from the following modules provided pre-requisites are satisfied</i>						
COMP281	Principles of C and Memory Management	7.5	5	-	COMP122	COMP282 COMP327
COMP282	Advanced Object Oriented C Languages	7.5	5	-	COMP281	COMP327
COMP283	Applied Database Management	7.5	5	-	COMP107 COMP207	-
COMP284	Scripting Languages	7.5	5	-	COMP122 COMP107 COMP207	-

\*COMP105 cannot be taken again if already taken in Year 1

\*<sup>1</sup>120 credits to be taken in Year 2

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G491 YEAR 3						
Module Code	Module Title	Credit Value	Level	Co-requisite	Pre-requisites	Pre-requisite for
Semester 1 and 2						
COMP299	Industrial Placement Year 3	120	5	-		-

G490/G491 Final Year						
Module Code	Module Title	Credit Value	Level	Co-requisites	Pre-requisites	Pre-requisite for
Semester 1 and 2						
COMP394	Honours Year Computer Science Project (+)	30	6	-	COMP122, COMP107 or equivalents; COMP215 and COMP108 recommended	-
Semester 1						
COMP319	Software Engineering II (•)	15	6	-	COMP201	-
COMP323	Introduction to Computational Game Theory (•)	15	6	-	COMP116 or equivalent mathematical module	COMP326
COMP327	Mobile Computing (•)	15	6	-	COMP122, COMP124, COMP281, COMP282	-
Semester 2						
COMP315	Technologies for E-Commerce (•)	15	6	-	COMP207	-
COMP318	Advanced Web Technologies (•)	15	6	-	COMP211, COMP212	-
<p><i>Plus options totalling 15 credits from the following three modules provided pre-requisites are satisfied</i></p>						
COMP310	Multi-Agent Systems	15	6	-	COMP111	-
COMP324	Complex Social Networks	15	6	-	-	-
COMP326	Computational Game Theory and Mechanism Design	15	6	-	COMP116 COMP323	-

Note: in exceptional circumstances, and with the approval of the programme Director of Studies, alternative modules may be substituted for non-mandatory modules.

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<b>G500/G502 YEAR 2</b>						
Module Code	Module Title	Credit Value	Level	Co-requisites	Pre-requisites	Pre-requisite for*
<b>Semester 1</b>						
COMP201	Software Engineering I (●)	15	5	-	COMP122 COMP107	COMP208, COMP220, COMP285, COMP319, COMP313
COMP207	Database Development (●)	15	5	-	COMP122 COMP107	COMP208, COMP283, COMP284, COMP315
COMP211	Internet Principles (●)	15	5	-	COMP122 COMP124	COMP212, COMP318
COMP219	Artificial Intelligence (●)	15	5	-	COMP116 COMP111 or equivalent	COMP305, COMP313, COMP329
<b>Semester 2</b>						
COMP208	Group Software Project (●)	15	5	-	COMP108, COMP107, COMP124, COMP122 or equivalents; COMP201; COMP207 or equivalent	COMP390
COMP220	Software Development Tools (●)	15	5	-	COMP122 COMP201	-
<b>For G502 only</b>						
COMP221	Planning Your Career (+)	7.5	5	-	COMP107	-
<i>Plus options totalling 15 credits from the following two modules provided pre-requisites are satisfied</i>						
COMP212	Distributed Systems	15	5	-	COMP122, COMP124, COMP211	COMP318
COMP222	Principles of Computer Game Design and Implementation	15	5	-	COMP122 COMP111	-
<i>Plus options totalling 15 credits from the following four modules provided pre-requisites are satisfied</i>						
COMP281	Principles of C and Memory Management	7.5	5	-	COMP122	COMP282 COMP327
COMP282	Advanced Object Oriented C Languages	7.5	5	-	COMP281	COMP327
COMP283	Applied Database Management	7.5	5	-	COMP107 COMP207	-
COMP284	Scripting Languages	7.5	5	-	COMP122 COMP107 COMP207	-

\*May also be a pre-requisite for modules on other programmes

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G500/G502 Final Year							
Module Code	Module Title	Credit Value	Level	Co-requisites	Pre-requisites	Pre-requisite for	
Semester 1 and 2							
COMP390	Honours Year Computer Science Project (+)	30	6	-	COMP122, COMP107 or equivalents; COMP208 and COMP108 recommended	-	
Semester 1							
<i>Plus options totalling 45 credits from the following modules provided pre-requisites are satisfied*<sup>1</sup></i>							
COMP304	Knowledge Representation and Reasoning	15	6	-	COMP109 COMP111	-	
COMP305	Biocomputation	15	6	-	COMP116 COMP219	-	
COMP319	Software Engineering II	15	6	-	COMP201	-	
COMP323	Introduction to Computational Game Theory	15	6	-	COMP116 or equivalent mathematical module	COMP326	
COMP327	Mobile Computing	15	6	-	COMP122, COMP124, COMP281, COMP282	-	
COMP329	Robotics and Autonomous Systems	15	6	-	COMP111, COMP124, COMP219	-	
Semester 2							
<i>Plus options totalling 45 credits from the following seven modules provided pre-requisites are satisfied*<sup>1</sup></i>							
COMP310	Multi-Agent Systems	15	6	-	COMP111	-	
COMP313	Formal Methods	15	6	-	COMP109, COMP201, COMP219	-	
COMP315	Technologies for E-Commerce	15	6	-	COMP207	-	
COMP318	Advanced Web Technologies	15	5	-	COMP211 COMP212	-	
COMP324	Complex Social Networks	15	6	-	-	-	
COMP326	Computational Game Theory and Mechanism Design	15	6	-	COMP116 COMP323	-	
Semester 1 and 2							
COMP335***	Communicating Computer Science	15	6	-	-	-	

\*\*\*Students who wish to choose this module will undergo an interview with the Module Co-ordinator before being selected.

\*<sup>1</sup>If COMP335 is taken, an imbalance of 15 credits between the two semesters is allowed. 120 credits to be taken in Year 3.

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G501/G503 YEAR 2						
Module Code	Module Title	Credit Value	Level	Co-requisite	Pre-requisite	Pre-requisite for*
Semester 1						
COMP201	Software Engineering I (●)	15	5	-	COMP122, COMP107	COMP208, COMP220, COMP285, COMP319, COMP313
COMP207	Database Development (●)	15	5	-	COMP122, COMP107	COMP208, COMP283, COMP284, COMP315
COMP211	Internet Principles (●)	15	5	-	COMP122, COMP124	COMP212, COMP318
COMP219	Artificial Intelligence (●)	15	5	-	COMP116 COMP111 or equivalent	COMP305, COMP313, COMP329
<b>For G503 only</b>						
COMP221	Planning Your Career (+)	7.5	5	-	COMP107	-
Semester 2						
COMP212	Distributed Systems (●)	15	5	-	COMP122, COMP124, COMP211	COMP318
COMP216	Internet Computing Group Project (●)	15	5	-	COMP108, COMP107, COMP124, COMP122, or equivalents; COMP201; COMP207; or equivalent	COMP390
COMP220	Software Development Tools (●)	15	5	-	COMP122; COMP201;	-
COMP281	Principles of C and Memory Management (●)	7.5	5	-	COMP122	COMP282 COMP327
COMP282	Advanced Object Oriented C Languages (●)	7.5	5	-	COMP281	COMP327

*\*May also be pre-requisite for modules on other programmes*

G503 YEAR 3						
Module Code	Module Title	Credit Value	Level	Co-requisite	Pre-requisites	Pre-requisite for
Semester 1 and 2						
COMP299	Industrial Placement Year 3	120	5	-	-	-

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G501/G503 Final Year						
Module Code	Module Title	Credit Value	Level	Co-requisite	Pre-requisites	Pre-requisite for
Semester 1 and 2						
COMP395	Honours Year Internet Computing Project (+)	30	6	-	COMP122, COMP107 or equivalents; COMP216 and COMP108 recommended	-
Semester 1						
COMP304	Knowledge Representation and Reasoning (•)	15	6	-	COMP109, COMP111	-
COMP319	Software Engineering II (•)	15	6	-	COMP201	-
COMP323	Introduction to Computational Game Theory (•)	15	6	-	COMP116 or equivalent mathematical module	COMP326
COMP327	Mobile Computing (•)	15	6	-	COMP122, COMP124, COMP281, COMP282	-
Semester 2						
COMP310	Multi-Agent Systems (•)	15	6	-	COMP111	-
COMP318	Advanced Web Technologies (•)	15	6	-	COMP211, COMP212	-
<i>Plus options totalling 15 credits from the following two modules provided pre-requisites are satisfied</i>						
COMP315	Technologies for E-Commerce	15	6	-	COMP207	-
COMP324	Complex Social Networks	15	6	-	-	-

**Note:** in exceptional circumstances, and with the approval of the programme Director of Studies, alternative modules may be substituted for non-mandatory modules.

Students may undertake their second year of studies at Xian-Jiaotong Liverpool University (XJTLU), Suzhou, China.



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G700/G701 YEAR 2						
Module Code	Module Title	Credit Value	Level	Co-requisite	Pre-requisites	Pre-requisite for*
<b>Semester1</b>						
COMP201	Software Engineering I (●)	15	5	-	COMP122 COMP107	COMP214, COMP220, COMP285, COMP319, COMP313
COMP207	Database Development (●)	15	5	-	COMP122 COMP107	COMP214, COMP283, COMP284, COMP315
COMP219	Artificial Intelligence (+)	15	5	-	COMP116 COMP111 or equivalent	COMP305, COMP313, COMP318, COMP329
<b>For G701 only</b>						
COMP221	Planning Your Career (+)	7.5	5	-	COMP107	-
<i>Plus options totalling 15 to 22.5 credits*<sup>1</sup> from the following modules provided pre-requisites are satisfied</i>						
COMP105*	Programming Language Paradigms	15	4	-	-	-
COMP211	Internet Principles	15	5	-	COMP122 COMP124	COMP212, COMP318
COMP221	Planning Your Career	7.5	5	-	COMP107	-
<b>Semester 2</b>						
COMP214	Group Software Project (●)	15	5	-	COMP108, COMP107, COMP124, COMP122 or equivalents; COMP201; COMP207 or equivalent	COMP393
COMP222	Principles of Computer Game Design and Implementation (●)	15	5	-	COMP122 COMP111	-
<i>Plus options totalling 15 credits from the following two modules provided pre-requisites are satisfied</i>						
COMP202	Complexity of Algorithms	15	5	-	COMP108, COMP116	COMP309, COMP324
COMP218	Decision, Computation and Language	15	5	-	COMP108 COMP109	-
<i>Plus options totalling 7.5 to 15 credits*<sup>1</sup> from the following modules provided pre-requisites are satisfied</i>						
COMP281	Principles of C and Memory Management	7.5	5	-	COMP122	COMP282 COMP327
COMP282	Advanced Object Oriented C Languages	7.5	5	-	COMP281	COMP327
COMP283	Applied Database Management	7.5	5	-	COMP107 COMP207	-
COMP284	Scripting Languages	7.5	5	-	COMP122 COMP107 COMP207	-
COMP285	Computer Aided Software Development	7.5	5	-	COMP122 COMP201	-

\*COMP105 cannot be taken again if already taken in Year 1

\*<sup>1</sup>120 credits to be taken in Year 2

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G701 Year 3						
Module Code	Module Title	Credit Value	Level	Co-requisite	Pre-requisites	Pre-requisite for
Semester 1 and 2						
COMP299	Industrial Placement Year 3	120	5	-	-	-

G700/G701 Final Year						
Module Code	Module Title	Credit Value	Level	Co-requisites	Pre-requisites	Pre-requisite for
Semester 1 and 2						
COMP393	Honours Year Computer Science Project (+)	30	6	-	COMP122, COMP107 or equivalents; COMP208 and COMP108 recommended	-
Semester 1						
<i>Plus options totalling 45 credits from the following four modules provided pre-requisites are satisfied</i>						
COMP304	Knowledge Representation and Reasoning	15	6	-	COMP109, COMP111	-
COMP305	Biocomputation	15	6	-	COMP116, COMP219	-
COMP323	Introduction to Computational Game Theory	15	6	-	COMP116 or equivalent mathematical module	COMP326
COMP327	Mobile Computing	15	6	-	COMP122, COMP124, COMP281, COMP282	-
COMP329	Robotics and Autonomous Systems	15	6	-	COMP111, COMP124, COMP219	-
Semester 2						
COMP310	Multi-Agent Systems (•)	15	6	-	-	-
COMP313	Formal Methods (•)	15	6	-	COMP109, COMP201, COMP219	-
COMP324	Complex Social Networks (•)	15	6	-	COMP202	-
Semester 1 and 2						
COMP335*	Communicating Computer Science	15	6	-	-	-

\*COMP335 - students who wish to choose this module will undergo an interview with the module provider before being selected.

**Note:** In exceptional circumstances, and with the approval of the programme Director of Studies, alternative modules may be substituted for non-mandatory modules. Students may undertake their second year of studies at Xian-Jiaotong Liverpool University XJTLU, Suzhou, China.

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The programme of study is split into years and semesters as follows.  
module (•) indicates a required module and (+) indicates a mandatory module

GG14/GG16 YEAR 1							
Module Code	Module Title	Credit Value	Level	Co-requisites	Pre-requisites	Pre-requisite for*	Parent Dept
Semester 1							
COMP101	Introduction to Programming (•)	15	4	-	-	COMP122	CS
or COMP105	Programming Language Paradigms (•)	15	4	-	A-level Computer Science expected		CS
COMP107	Graduates for the Digital Society (•)	15	4	-	-	Number of second and third year modules	CS
MATH101	Calculus I (•)	15	4	-	-	Number of second and third year modules	Maths
MATH103	Introduction to Linear Algebra (•)	15	4	-	-	Number of second and third year modules	Maths
Semester 2							
COMP108	Algorithmic Foundations (•)	15	4	-	-	COMP218 COMP202	CS
COMP122	Object-Oriented Programming (•)	15	4	-	-	Number of second and third year modules	CS
MATH102	Calculus II (•)	15	4	-	-	Number of second and third year modules	Maths
<i>Plus options totalling 15 credits from the following three modules provided pre-requisites are satisfied</i>							
MATH122	Dynamic Modelling	15	4	-	-	Number of second and third year modules	Maths
MATH142	Numbers, Groups and Codes	15	4	-	-	Number of third year modules	Maths
MATH162	Introduction to Statistics	15	4	-	-	Number of second year modules	Maths

\*May also be a pre-requisite for modules on other programmes

GG14/GG16 YEAR 2							
Module Code	Module Title	Credit Value	Level	Co-requisite	Pre-requisites	Pre-requisite for	Parent Dept

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Semester 1							
<b>For GG16 only</b>							
COMP221	Planning Your Career (+)	7.5	5	-	COMP107	-	CS
<i>Choose options totalling 30 credits from the following four modules provided pre-requisites are satisfied</i>							
COMP111	Introduction to Artificial Intelligence	15	4	-	-	Number of second and third year modules	CS
COMP201	Software Engineering I	15	5	-	COMP122 COMP107		CS
COMP207	Database Development	15	5	-	COMP122 COMP107	COMP315	CS
<i>Plus options totalling 30 credits from the following eight modules provided pre-requisites are satisfied</i>							
MATH201	Ordinary Differential Equations	15	5	-	MATH101 MATH102 MATH103	Number of third year modules	Maths
MATH225	Vector Calculus with Applications in Fluid Mechanics	15	5	-	MATH102	-	Maths
MATH227	Math Models: Micro-economics & Population Dynamics	15	5	-	MATH101 MATH102 MATH103	-	Maths
MATH241	Metric Spaces and Calculus	15	5	-	MATH101 MATH102 MATH103	-	Maths
MATH243	Complex Functions	15	5	-	MATH101 MATH102 MATH103	-	Maths
MATH244	Linear Algebra and Geometry	15	5	-	MATH101 MATH102 MATH103	-	Maths
MATH261	Introduction to Methods of Operational Research	15	5	-	MATH101 MATH102 MATH103	-	Maths
MATH268	Operational Research: Probabilistic Models	15	5	-	MATH101 MATH102 MATH103 MATH162	-	Maths
Semester 2							
COMP202	Complexity of Algorithms (•)	15	5	-	COMP108	Number of third year options	CS
<i>Plus options totalling 15 credits from the following two modules provided pre-requisites are satisfied:</i>							

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COMP124	Computer Systems	15	4	-	-	-	CS
COMP218	Decision, Computation and Language	15	5	-	COMP108 COMP109	-	CS

*Plus options totalling 30 credits from the following nine modules provided pre-requisites are satisfied:*

MATH206	Group Project Module	15	5	-	-	-	Maths
MATH224	Introduction to the Methods of Applied Mathematics	15	5	-	MATH101 MATH102 MATH103	Number of third year modules	Maths
MATH228	Classical Mechanics	15	5	-	MATH101 MATH102 MATH103 MATH122	Number of third year modules	Maths
MATH247	Commutative Algebra	15	5	-	MATH101 MATH102 MATH103	-	Maths
MATH248	Geometry of Curves	15	5	-	MATH101 MATH102 MATH103	-	Maths
MATH262	Financial Mathematics II	15	5	-	MATH101 MATH103 MATH162	s-	Maths
MATH263	Statistical Theory and Methods I	15	5	-	MATH101 MATH102 MATH103 MATH162	Number of third year modules	Maths
MATH264	Statistical Theory and Methods II	15	5	-	MATH101 MATH103 MATH162	Number of third year modules	Maths
MATH266 <sup>1</sup>	Numerical Methods	15	5	-	MATH101 MATH102 MATH103	-	Maths

\*May also be a pre-requisite for modules on other programmes

<sup>1</sup> MATH266 is highly recommended

GG16 YEAR 3						
Module Code	Module Title	Credit Value	Level	Co-requisite	Pre-requisites	Pre-requisite for
Semester 1 and 2						
COMP299	Industrial Placement Year 3	120	5	-	-	-

GG14/GG16 Final Year							
Module Code	Module Title	Credit Value	Level	Co-requisite	Pre-requisites	Pre-requisite for	Parent Dept
Semester 1							
<i>Choose options totalling 30 credits from the following eight modules provided pre-requisites are satisfied</i>							

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COMP219	Artificial Intelligence	15	5	-	COMP116, COMP111, equivalent	or	A number of third year modules	CS
COMP304	Knowledge Representation and Reasoning	15	6	-	COMP109, COMP111		-	CS
COMP305	Biocomputation	15	6	-	-		-	CS
COMP309	Efficient Sequential Algorithms	15	6	-	COMP202		-	CS
COMP319	Software Engineering II	15	6	-	COMP201		-	CS
COMP323	Introduction to Computational Game Theory	15	6	-	COMP109 equivalent mathematical module	or	-	CS
COMP331	Optimization	15	6	-	COMP109 equivalent mathematical module	or	-	CS
COMP391 <sup>1</sup>	Final Year First Semester 15 Credit Project	15	6	-	-		-	CS
<i>Plus options totalling 30 credits from the following ten modules provided pre-requisites are satisfied<sup>1</sup>:</i>								
MATH322	Chaos and Dynamical Systems	15	6	-	MATH101 MATH103 MATH201		-	Maths
MATH323	Further Methods of Applied Mathematics	15	6	-	MATH101 MATH102 MATH103 MATH224		-	Maths
MATH324	Cartesian Tensors and Mathematical Models of Solids and Viscous Fluids	15	6	-	MATH101 MATH102 MATH103		-	Maths
MATH325	Quantum Mechanics	15	6	-	MATH101, MATH102, MATH103, MATH122; MATH201 MATH224	or	-	Maths
MATH343	Group Theory	15	6	-	MATH101, MATH103; MATH142 MATH244 MATH247 helpful	or or	-	Maths
MATH344	Combinatorics	15	6	-	MATH101 MATH102 MATH103		-	Maths
MATH351	Analysis and Number Theory	15	6	-	MATH101 MATH102 MATH103; MATH241 helpful		-	Maths
MATH362	Applied Probability	15	6	-	MATH264		-	Maths
MATH363	Linear Statistical Models	15	6	-	MATH263		-	Maths
MATH367	Networks in Theory and Practice	15	6	-	2 <sup>nd</sup> Year Maths		-	Maths
<b>Semester 2</b>								
<i>Plus options totalling 30 credits from the following six modules provided pre-requisites are satisfied<sup>1</sup></i>								
COMP310	Multi-Agent Systems	15	6	-	COMP111		-	CS

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COMP313	Formal Methods	15	6	-	COMP109, COMP201, COMP219	-	CS
COMP315	Technologies for E-Commerce	15	6	-	COMP207	-	CS
COMP326	Computational Game Theory and Mechanism Design	15	6	-	COMP323 COMP109 or equivalent mathematical module	-	CS
COMP392 <sup>1</sup>	Final Year Second Semester 15 Credit Project	15	6	-	-	-	CS
Semester 1 and 2							
<sup>2</sup> COMP335	Communicating Computer Science	15	6	-	-	-	CS
<i>Plus options totalling 30 credits from the following nine modules provided pre-requisites are satisfied</i>							
MATH326	Relativity	15	6	-	MATH101 MATH102 MATH103 MATH122 MATH228	-	Maths
MATH331	Mathematical Economics	15	6	-	MATH101 MATH102 MATH103; MATH227 preferred	-	Maths
MATH332	Mathematical Biology	15	6	-	MATH101 MATH102 MATH103 MATH201	-	Maths
MATH342	Number Theory	15	6	-	MATH101 MATH103 MATH142	-	Maths
MATH349	Differential Geometry	15	6	-	MATH101 MATH102 MATH103; MATH248 recommended	-	Maths
MATH361	Theory of Statistical Inference	15	6	-	MATH263 MATH264	-	Maths
MATH364	Medical Statistics	15	6	-	-	-	Maths
MATH366	Mathematical Risk Theory	15	6	-	MATH264	-	Maths
MATH399 <sup>2</sup>	Projects in Mathematics	15	6	-	MATH334 MATH302 MATH391	-	Maths

<sup>1</sup> COMP391/2 is highly recommended, but only one of COMP391/2 can be taken

<sup>2</sup>COMP335 – students who wish to choose this module will undergo an interview with the module provider before being selected.

<sup>1</sup>If COMP335 is taken, an imbalance of 15 credits between the two semesters is allowed. 120 credits to be taken in Year 3.

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GN34/G3N4 YEAR 1							
Module Code	Module Title	Credit Value	Level	Co-requisites	Pre-requisites	Pre-requisite for*	Parent Dept
Semester 1							
ACFI101	Introduction to Financial Accounting (•)	15	4	-	-	-	ULMS
COMP101 or COMP105	Introduction to Programming (•)  Programming Language Paradigms (•)	15  15	4  4	-  -	-  A-level Computer Science expected	COMP122  COMP122	CS  CS
COMP107	Graduates for the Digital Society (•)	15	4	-	-	COMP201, COMP207, COMP208,  COMP283, COMP284, COMP390	CS
ECON121	Principles of Microeconomics (•)	15	4	-	-	ECON241	ULMS
Semester 2							
ACFI102	Introduction to Management Accounting (•)	15	4	-	-	-	ULMS
ACFI103	Introduction to Finance (•)	15	4	-	-	ACFI213 ECON241	ULMS
COMP116	Analytical Techniques in Computer Science (•)	15	4	-	-	COMP202, COMP219, COMP226, COMP305, COMP323, COMP326, COMP331	CS
COMP122	Object-Oriented Programming (•)	15	4	-	COMP101 or COMP105	COMP201, COMP207, COMP220, COMP211, COMP212, COMP222, COMP281, COMP284, COMP285, COMP208, COMP327, COMP390	CS

\*May also be a pre-requisite for modules on other programmes



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GN34/G3N4 YEAR 2							
Module Code	Module Title	Credit Value	Level	Co-requisite	Pre-requisites	Pre-requisite for	Parent Dept
Semester 1							
<b>For GN34 only</b>							
COMP221	Planning Your Career (+)	7.5	5	-	COMP107	-	CS
<i>Choose options totalling 30 credits from the following four modules provided pre-requisites are satisfied</i>							
COMP111	Introduction to Artificial Intelligence	15	4	-	-	Number of second and third year modules	CS
COMP201	Software Engineering I	15	5	-	COMP122 COMP107		CS
COMP207	Database Development	15	5	-	COMP122 COMP107	COMP315	CS
<i>Plus options totalling 30 credits from the following eight modules provided pre-requisites are satisfied</i>							
MATH201	Ordinary Differential Equations	15	5	-	MATH101 MATH102 MATH103	Number of third year modules	Maths
MATH225	Vector Calculus with Applications in Fluid Mechanics	15	5	-	MATH102	-	Maths
MATH227	Math Models: Micro-economics & Population Dynamics	15	5	-	MATH101 MATH102 MATH103	-	Maths
MATH241	Metric Spaces and Calculus	15	5	-	MATH101 MATH102 MATH103	-	Maths
MATH243	Complex Functions	15	5	-	MATH101 MATH102 MATH103	-	Maths
MATH244	Linear Algebra and Geometry	15	5	-	MATH101 MATH102 MATH103	-	Maths
MATH261	Introduction to Methods of Operational Research	15	5	-	MATH101 MATH102 MATH103	-	Maths
MATH268	Operational Research: Probabilistic Models	15	5	-	MATH101 MATH102 MATH103 MATH162	-	Maths
Semester 2							
COMP202	Complexity of Algorithms (•)	15	5	-	COMP108	Number of third year options	CS

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Plus options totalling 15 credits from the following two modules provided pre-requisites are satisfied:

COMP124	Computer Systems	15	4	-	-	-	CS
COMP218	Decision, Computation and Language	15	5	-	COMP108 COMP109	-	CS

Plus options totalling 30 credits from the following nine modules provided pre-requisites are satisfied:

MATH206	Group Project Module	15	5	-	-	-	Maths
MATH224	Introduction to the Methods of Applied Mathematics	15	5	-	MATH101 MATH102 MATH103	Number of third year modules	Maths
MATH228	Classical Mechanics	15	5	-	MATH101 MATH102 MATH103 MATH122	Number of third year modules	Maths
MATH247	Commutative Algebra	15	5	-	MATH101 MATH102 MATH103	-	Maths
MATH248	Geometry of Curves	15	5	-	MATH101 MATH102 MATH103	-	Maths
MATH262	Financial Mathematics II	15	5	-	MATH101 MATH103 MATH162	s-	Maths
MATH263	Statistical Theory and Methods I	15	5	-	MATH101 MATH102 MATH103 MATH162	Number of third year modules	Maths
MATH264	Statistical Theory and Methods II	15	5	-	MATH101 MATH103 MATH162	Number of third year modules	Maths
MATH266 <sup>1</sup>	Numerical Methods	15	5	-	MATH101 MATH102 MATH103	-	Maths

\*May also be a pre-requisite for modules on other programmes

<sup>1</sup> MATH266 is highly recommended

### G3N4 YEAR 3

Module Code	Module Title	Credit Value	Level	Co-requisite	Pre-requisites	Pre-requisite for
Semester 1 and 2						
COMP299	Industrial Placement Year 3	120	5	-	-	-

### GN34/G3N4 Final Year

Module Code	Module Title	Credit Value	Level	Co-requisite	Pre-requisites	Pre-requisite for	Parent Dept
Semester 1							

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<i>Choose options totalling 30 credits from the following eight modules provided pre-requisites are satisfied</i>								
COMP219	Artificial Intelligence	15	5	-	COMP116, COMP111, equivalent	or	A number of third year modules	CS
COMP304	Knowledge Representation and Reasoning	15	6	-	COMP109, COMP111	-	-	CS
COMP305	Biocomputation	15	6	-	-	-	-	CS
COMP309	Efficient Sequential Algorithms	15	6	-	COMP202	-	-	CS
COMP319	Software Engineering II	15	6	-	COMP201	-	-	CS
COMP323	Introduction to Computational Game Theory	15	6	-	COMP109 equivalent mathematical module	or	-	CS
COMP331	Optimization	15	6	-	COMP109 equivalent mathematical module	or	-	CS
COMP391 <sup>1</sup>	Final Year First Semester 15 Credit Project	15	6	-	-	-	-	CS
<i>Plus options totalling 30 credits from the following ten modules provided pre-requisites are satisfied<sup>1</sup>:</i>								
MATH322	Chaos and Dynamical Systems	15	6	-	MATH101 MATH103 MATH201	-	-	Maths
MATH323	Further Methods of Applied Mathematics	15	6	-	MATH101 MATH102 MATH103 MATH224	-	-	Maths
MATH324	Cartesian Tensors and Mathematical Models of Solids and Viscous Fluids	15	6	-	MATH101 MATH102 MATH103	-	-	Maths
MATH325	Quantum Mechanics	15	6	-	MATH101, MATH102, MATH103, MATH122; MATH201 MATH224	or	-	Maths
MATH343	Group Theory	15	6	-	MATH101, MATH103; MATH142 MATH244 MATH247 helpful	or or	-	Maths
MATH344	Combinatorics	15	6	-	MATH101 MATH102 MATH103	-	-	Maths
MATH351	Analysis and Number Theory	15	6	-	MATH101 MATH102 MATH103; MATH241 helpful	-	-	Maths
MATH362	Applied Probability	15	6	-	MATH264	-	-	Maths
MATH363	Linear Statistical Models	15	6	-	MATH263	-	-	Maths
MATH367	Networks in Theory and Practice	15	6	-	2 <sup>nd</sup> Year Maths	-	-	Maths
Semester 2								
<i>Plus options totalling 30 credits from the following six modules provided pre-requisites are satisfied<sup>1</sup></i>								

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COMP310	Multi-Agent Systems	15	6	-	COMP111	-	CS
COMP313	Formal Methods	15	6	-	COMP109, COMP201, COMP219	-	CS
COMP315	Technologies for E-Commerce	15	6	-	COMP207	-	CS
COMP326	Computational Game Theory and Mechanism Design	15	6	-	COMP323 COMP109 or equivalent mathematical module	-	CS
COMP392 <sup>1</sup>	Final Year Second Semester 15 Credit Project	15	6	-	-	-	CS
Semester 1 and 2							
<sup>2</sup> COMP335	Communicating Computer Science	15	6	-	-	-	CS
<i>Plus options totalling 30 credits from the following nine modules provided pre-requisites are satisfied</i>							
MATH326	Relativity	15	6	-	MATH101 MATH102 MATH103 MATH122 MATH228	-	Maths
MATH331	Mathematical Economics	15	6	-	MATH101 MATH102 MATH103; MATH227 preferred	-	Maths
MATH332	Mathematical Biology	15	6	-	MATH101 MATH102 MATH103 MATH201	-	Maths
MATH342	Number Theory	15	6	-	MATH101 MATH103 MATH142	-	Maths
MATH349	Differential Geometry	15	6	-	MATH101 MATH102 MATH103; MATH248 recommended	-	Maths
MATH361	Theory of Statistical Inference	15	6	-	MATH263 MATH264	-	Maths
MATH364	Medical Statistics	15	6	-	-	-	Maths
MATH366	Mathematical Risk Theory	15	6	-	MATH264	-	Maths
MATH399 <sup>2</sup>	Projects in Mathematics	15	6	-	MATH334 MATH302 MATH391	-	Maths

<sup>1</sup>COMP391/2 is highly recommended, but only one of COMP391/2 can be taken

<sup>2</sup>COMP335 – students who wish to choose this module will undergo an interview with the module provider before being selected.

<sup>1</sup>If COMP335 is taken, an imbalance of 15 credits between the two semesters is allowed. 120 credits to be taken in Year 3.