

# **University of Plymouth**

Faculty of Science and Engineering

School of Computing Electronics and Mathematics

## **Programme Specification**

BSc (Hons) Computing & Games Development 4230

September 2017

## 1. BSc (Hons) Computing & Games Development

**Final award title** BSc (Hons) Computing & Games Development  
**Level H (HE6)**

**Level 6 intermediate award title** A student achieving 320 taught credits, of which at least 80 are at Level 6, 120 are at Level 5 and 120 at Level 4 is eligible for the award of Bachelor of Science (BSc) ordinary degree.

**Level 5 Intermediate award title** A student achieving 240 credits, of which at least 120 are at Level 5 or above, is eligible for the award of a Diploma of Higher Education (DipHE). Level: H (HE2)

**Level 4 Intermediate award title** A student achieving 120 credits at Level 4 is eligible for the award of a Certificate of Higher Education (CertHE). Level: H (HE1)

**UCAS code** G455

**JACS code** I100

2. **Awarding Institution:** University of Plymouth

**Teaching institution(s):** University of Plymouth

3. **Accrediting body(ies)** BCS

Summary of specific conditions/regulations:

Accredited as meeting the requirements for CITP (Chartered IT Professional) and partially meeting the requirements for CEng (Chartered Engineer)

Date of re-accreditation: April 2017

## 4. Distinctive Features of the Programme and the Student Experience

- A balance of Games Development and Computer Science core modules providing opportunities to develop a wide range of prototypes for multiple platforms and devices.
- Guest Lectures from games sector companies, trade bodies and industry veterans.
- Content is constantly revised informed by local and national organisations including TIGA, Skillset and Creative England.
- A paid short internship or placement year in industry (strongly recommended) enables the student to obtain an insight into the application of their knowledge and provides invaluable experience of the professional environment.

- In house development studio delivering core games development workshops passing on current sector skills and expertise. The studio team also develops applications for internal and external clients, releases and exhibits products at national and international events and is an active member of TIGA (trade body for the UK games industry).
- The studio is recognised as a ‘gold sponsor’ and regular exhibitor at annual Explay Independent Games festival and has been featured in national online/offline press including Develop, Edge and related Games sector publications. This high profile sector engagement generates internships, placements, graduate opportunities and international recruitment.
- Active support for student enterprise through; core modules, competitions, awards, live projects with commercial partners, and graduate companies.
- Some teaching staff undertake research that is internationally recognised. Others have industrial collaboration. Other staff write and publish apps in the Apple App store or Google Play.
- The School of Computing and Mathematics has strong links with industry including Apple, Microsoft, Oracle, Cisco, Intel, Nvidia and many more. We are a member of Microsoft DreamSpark and the Oracle Academy, both of which enable our students to acquire free software to support their studies. We are a Cisco Networking Academy and an NVIDIA CUDA Teaching Centre
- The Programme is also accredited by the British Computer Society (BCS) and an Institutional member of the trade body for the UK Games Industry (TIGA)

## 5. Relevant QAA Subject Benchmark Group(s)

Computing

## 6. Programme Structure

**Stage1.** HE Level4. All modules are 20-credit

<b>AINT154</b> Games Development Immersive Introduction		Semester 1
<b>AINT151</b> Web Game Technologies	<b>SOFT152</b> Software Engineering	
<b>Plymouth Plus</b> (option)		Semester 2
<b>AINT152</b> Games Workshop	<b>SOFT153</b> Algorithms, Data Structures & Maths	
		<b>BPIE111</b>

**Stage2.** HE Level5. All modules are 20-credit

<b>AINT253</b> Design Process	<b>AINT254</b> Interactive Systems Workshop	<b>SOFT252</b> Software Engineering with Design Patterns	Semester 1
<b>PRCO203</b> Live Integrating Project	<b>AINT255</b> Artificial Intelligence for Game Developmen t	<b>Option</b>  SOFT261 or SOFT254	Semester 2
			<b>BPIE211</b>

**Stage4.** HE Level5. All modules are 20-credit except PRCO304

<b>AINT354</b> Design for Entertainmen t Systems	<b>Option 1</b> AINT351, AINT352 AINT353 ISAD362	<b>Option 2</b> ISAD357 SOFT351 SOFT352 SOFT354	Semester1
<b>AINT355</b> Industry Engagement	<b>PRCO304</b> Computing Project		Semester 2

### Stage 1 Core Modules

120 Level 4 Credits

Module Code	Module Title	Credit	Semester	Exam %	Test %	Practise %	CW %
AINT154	Games Development Immersive Induction	20	S1	0	0	0	100
AINT151	Web Game Technologies	20	S1	0	0	0	100
SOFT152	Software Engineering	20	S1	0	0	0	100
See below	Plymouth Plus	20	S2	0	0	0	100
AINT152	Games Workshop	20	S2	0	0	0	100
SOFT153	Algorithms, Data Structures, Maths	20	S2	40	0	0	60
BPIE100	Stage1 Placement Preparation	0	S2	-	-	-	-

### Stage 1 Plymouth Plus modules

120 Level 4 Credits

Module Code	Module Title	Credit	Semester	Exam %	Test %	Practise %	CW %
AINT153PP	Intelligent Systems (Computer Science Workshop)	20	S2	0	0	0	100
MATH1608PP	Understanding Big Data from Social Networks	20	S2	0	0	0	100
SEC102PP	Cybersecurity Essentials	20	S2	0	0	0	100
SOFT156PP	Developing E-commerce Applications	20	S2	0	0	0	100

## Stage 2 Core Modules

100 Level 5 Credits

Module Code	Module Title	Credit	Semester	Exam %	Test %	Practise %	CW %
AINT253	Design Process	20	S1	0	0	0	100
AINT254	Interactive Systems Workshop	20	S1	0	0	0	100
SOFT252	Object Oriented Software Engineering with Design Patterns	20	S1	0	10	0	90
AINT255	Artificial Intelligence for Game Development	20	S2	50	0	0	50
PRCO203	Live Integrating Project	20	S2	0	0	0	100
BPIE200	Stage2 Placement Preparation	0	AY	-	-	-	-

## Stage 2 Optional Modules

20 Level 5 Credits

Module Code	Module Title	Credit	Semester	Exam %	Test %	Practise %	CW %
SOFT261	Embedded Programming and the Internet of Things	20	S2	0	0	0	100
SOFT254	Mobile Device and HCI programming	20	S1	0	30	0	70

## Optional Placement Year

BPIE330: Generic Computing Placement

## Stage 4 Core Modules

80 Level 6 Credits

Module Code	Module Title	Credit	Semester	Exam %	Test %	Practise %	CW %
AINT354	Design for Entertainment Systems	20	S1	0	0	0	100
AINT355	Industry Engagement	20	S2	0	0	0	100
PRCO304	Individual Computing Project	40	S2	0	0	0	100

## Stage 4 Optional Modules

40 credits optional: choose 2 options

Module Code	Module Title	Credit	Semester	Exam %	Test %	Practise %	CW %
AINT351	Machine Learning	20	S1	0	30	0	70
AINT352	Computational Intelligence	20	S1	50	0	0	50
AINT353	Brain Inspired Computer Systems	20	S1	0	0	0	100
ISAD362	Software Project Management	20	S1	75	25	0	0
ISAD357	Cyberpsychology	20	S1	0	0	0	100
SOFT351	Programming for Entertainment Systems	20	S1	0	0	0	100
SOFT352	Client-side web scripting	20	S1	50	0	20	30
SOFT354	Parallel Computation	20	S1	0	0	0	100

## 7. Programme Aims

The programme shares the subject aims for Computing courses within the Faculty of Science and Engineering, which are:

- 1) To be informative and challenging, and to establish a knowledge base suitable for a career in Information and Communication Technology.
- 2) To give students with a wide variety of qualifications an opportunity to realise their potential.
- 3) To enrich the curriculum content and teaching quality through the professional and/or research expertise of expertise of staff and through links with external organisations.

- 4) To encourage and support students whilst they develop and apply subject-specific and generic skills that will facilitate life-long learning and continuing professional development.
- 5) To produce graduates who can make a significant contribution to their chosen profession.

In addition, BSc (Hons) Computing & Games Development has the following programme specific aims:

- 6) To provide a theoretical underpinning for the ability to adapt fundamental games development principles to a wide range of related sectors;
- 7) To establish a broad foundation of knowledge and skills required for the conception, design and implementation of software solutions to real world problems.
- 8) To motivate a proactive and enterprising approach to creating Intellectual Property (IP)
- 9) To develop a range of professional knowledge and skills that are required to succeed and progress in the Games sector and related Industries;
- 10) To produce highly adaptable graduates with the potential to launch a start up company or commercialise their own Intellectual Property (IP)

## **8. Programme Intended Learning Outcomes**

### **8.1. Knowledge and understanding**

On successful completion graduates should have developed:

- 1) A detailed knowledge and systematic understanding of computer hardware and software engineering principles and tools for the analysis and design of computer systems.
- 2) An awareness of the social, economic and psychological factors which influence the uptake of this new technology and the resulting benefits and drawbacks of its introduction.
- 3) An awareness of the ethical and professional issues for developers of games related applications.
- 4) An awareness of data structures, algorithms, and basic mathematical principals relevant to computing and games development.

### **8.2. Cognitive and intellectual skills**

On successful completion graduates should have developed:

- 1) An ability to evaluate a variety of hardware and software and select appropriate products for particular applications.
- 2) An ability to critically evaluate factors that contribute to software project success and failure.
- 3) An ability to take a holistic approach to solving problems in computer systems, applying professional judgement to balance risks and benefits.



- 4) Take a holistic approach to solving problems in systems, applying professional judgement to balance risks, costs and benefits
- 5) Can critically evaluate systems and evidence to support conclusions and recommendations

### **8.3. Key and transferable skills**

On successful completion graduates should have developed the ability to:

- 1) To work effectively both individually and as part of a team
- 2) To self-evaluate performance and contribution.
- 3) To use cloud computing and social media to document, manage, evaluate and promote project work
- 4) To learn effectively for the purpose of continuing professional development throughout their career.
- 5) To use industry standard tools for project documentation, resource management and version control.

### **8.4. Employment related skills**

On successful completion graduates should have developed:

- 1) Initiative and personal responsibility
- 2) Effective communication and debating skills
- 3) The ability to make decisions based on incomplete information
- 4) The educational skills required for deep learning

### **8.5. Practical skills**

On successful completion graduates should have developed:

- 1) The necessary skills to design and implement complex computer applications, for a variety of platforms and devices.
- 2) The necessary skills required for substantial problem solving involving a theoretical and methodological framework of analysis, design, production, testing and evaluation of the end product.
- 3) The necessary skills for effective project management
- 4) The necessary skills to prepare technical reports.
- 5) The necessary skills to present information, either in the form of a presentation or documentation, in a form and at a technical level appropriate for the target audience.

## 9. Admissions Criteria, including APCL, APEL and DAS arrangements

All applicants must have GCSE (or equivalent) Maths at Grade B or above and English at Grade C or above.

<b>Entry Requirements for BSc (Hons) Computing &amp; Games Development</b>	
A-level/AS-level	116-120 points, a typical offer is 120 points from minimum of 2 A Levels. GCSE Maths Grade B/6 If you have a Grade C/4 in Maths please contact admissions. All subjects except General Studies and Key Skills considered
General Studies A-Level	Is not accepted as part of a points offer.
BTEC National Diploma/QCF Extended Diploma	<b>18 Units BTEC National Diploma/QCF Extended Diploma: DDM</b> – related subjects. <b>Acceptable Subjects:</b> IT, Humanities, Engineering, Software Development, IT Practitioners, Business, Computing, Science. Art/ Sports related subjects refer to Tutor.
Access to Higher Education at level 3	Pass a named Access to HE Diploma (e.g. Computing/IT/Science/ Humanities/Engineering), (including GCSE English and Maths grade C or above or equivalent) with at least 33 credits at Merit and/or Distinction to include 12 credits at level 3 in Maths with Merit. Including GCSE English and Maths grade C /4 or above or equivalent. If not level 3 maths refer to admissions tutor.
Scottish Qualifications Authority	300 points. Technical subjects preferred.
Irish Leaving Certificate	ABBBB in Highers. Irish Leaving Cert Ordinary Level Grade C or above for English and Maths.
International Baccalaureate	30 overall– English and Mathematics must be included.
European Baccalaureate	75% overall to include 7.5 in English or first language
Progression from Year0 (Foundation Pathway)	Foundation year (FPT) with overall average of 55% and a Game related project

## 10. Progression criteria for Final and Intermediate Awards

BSc (Hons) Computing & Games Development (level HE6) on satisfactory completion of 120 L6, 120 L5 and 120 L4 credits

BSc Computing & Games Development (level HE6) on satisfactory completion of 80 L6, 120 L5 and 120 L4 credits

Diploma of Higher Education in Computing & Games Development (level HE5) - on satisfactory completion of 120 L5 and 120 L4 credits

Certificate of Higher Education in Computing & Games Development (level HE4) - on satisfactory completion of 120 L4 credits

**11. Exceptions to Regulations**

The programme adheres to the current University Assessment Regulations.

**12. Transitional Arrangements**

<b>2016/17 Modules</b>	<b>2017/18 Modules</b>
SOFT253	SOFT261
ISAD351	ISAD362
ISAD355	ISAD357

### 13. Mapping and Appendices:

#### 13.1. ILO's against Modules Mapping

Programme Intended Learning Outcome	Related Core Modules
<p><b>Knowledge and understanding</b></p> <p>On successful completion graduates should have developed:</p> <ol style="list-style-type: none"><li>1) A detailed knowledge and systematic understanding of computer hardware and software engineering principles and tools for the analysis and design of computer systems.</li><li>2) An awareness of the social, economic and psychological factors which influence the uptake of this new technology and the resulting benefits and drawbacks of its introduction.</li><li>3) An awareness of the ethical and professional issues for developers of games related applications.</li><li>4) An awareness of data structures, algorithms, and basic mathematical principals relevant to computing and games development.</li></ol>	<p>SOFT152, SOFT252, AINT254.</p> <p>AINT152, AINT254, SOFT252.</p> <p>Extended Induction AINT254, AINT354, AINT355 PRCO203.</p> <p>SOFT152, SOFT261</p>

Programme Intended Learning Outcome	Related Core Modules
<p><b>Cognitive and intellectual skills</b></p> <p>On completion graduates should have developed:</p> <ol style="list-style-type: none"> <li>1) An ability to evaluate a variety of hardware and software and select appropriate products for particular applications.</li> <li>2) An ability to critically evaluate factors that contribute to software project success and failure.</li> <li>3) An ability to take a holistic approach to solving problems in computer systems, applying professional judgement to balance risks and benefits.</li> <li>4) Can critically evaluate systems and evidence to support conclusions and recommendations</li> </ol>	<p>PRCO203, PROJ30, AINT253</p> <p>PRCO203, AINT254 SOFT252, AINT354, PRCO304</p> <p>PRCO203, SOFT261, PRCO304</p> <p>PRCO203, SOFT252, PRCO304</p>

<b>Programme Intended Learning Outcome</b>	<b>Related Core Modules</b>
<p><b>Key and transferable skills</b></p> <p>On successful completion graduates should have developed the ability to:</p> <p>6) To work effectively both individually and as part of a team</p> <p>7) To self-evaluate performance and contribution.</p> <p>8) To use cloud computing and social media to document, manage, evaluate and promote project work</p> <p>9) To learn effectively for the purpose of continuing professional development throughout their career.</p> <p>10) To use industry standard tools for asset creation, project documentation, resource management and version control.</p>	<p>PRCO203, AINT254, AINT354</p> <p>AINT152, AINT151, PRCO203, PRCO304, AINT354</p> <p>AINT152, AINT254, AINT354</p> <p>Extended induction and core modules AINT355</p> <p>AINT152, AINT253, AINT254, AINT354,</p>
<p><b>Employment related skills</b></p> <p>On successful completion graduates should have developed:</p> <p>1) Initiative and personal responsibility</p> <p>2) Effective communication and debating skills</p> <p>3) The ability to make decisions based on incomplete information</p> <p>4) The educational skills required for deep learning</p>	<p>Project based modules</p> <p>AINT253, PRCO203</p> <p>PRCO203, AINT254, AINT354,</p> <p>PRCO203, PRCO304</p>

Programme Intended Learning Outcome	Related Core Modules
<p><b>Practical skills</b></p> <p>On successful completion graduates should have developed:</p> <ol style="list-style-type: none"> <li>1)The necessary skills to design and implement complex computer applications, for a variety of platforms and devices.</li> <li>2)The necessary skills required for substantial problem solving involving a theoretical and methodological framework of analysis, design, production, testing and evaluation of the end product.</li> <li>3)The necessary skills for effective project management</li> <li>4)The necessary skills to prepare technical reports.</li> <li>5)The necessary skills to present information, either in the form of a presentation or documentation, in a form and at a technical level appropriate for the target audience.</li> </ol>	<p>AINT151, AINT253, SOFT152, SOFT252.</p> <p>AINT253, AINT254, SOFT153, SOFT252, SOFT261, PRCO203,, PRCO304</p> <p>AINT254, AINT354, PRCO304</p> <p>AINT254, AINT354, PRCO203, PRCO304, PRCO203,</p> <p>AINT355SOFT152, ISAD251, SOFT252,</p> <p>SOFT252, PRCO304</p>

### 13.2. Assessment against Modules Mapping

Highlighted in course structure

### 13.3. Skills against Modules Mapping

Enclosed is a spreadsheet of skills mapped onto the BCS documentation.

### 13.4. Appendices

BCS skills map

## 13.4 BCS Skills Map

### TYPE 1 - HEI APPLICATION FOR BCS ACCREDITATION

#### Section B.2.4 - Table Mapping Core Modules to the Accreditation Criteria

PLEASE INDICATE WHERE CRITERIA ARE TAUGHT **AND** ASSESSED

HEI : University of Plymouth

Programme : BSc (Hons) Computing & Games Development

Date : October 2014

**Core Modules/ Accreditation Criteria** (full wording for each criterion is available in Appendix IV of the Accreditation Guidelines)

	Level 1* (HE4)	Soft155 Immersive Induction	AINT151	SOFT152	P+	AINT152	SOFT153	Level 2* (HE5)	AINT253	AINT254	AINT255	SOFT252	SOFT261	PRCO203	Level 3* (HE6)	PRCO304	AINT354	AINT355
<b>Core requirements for accreditation</b>																		
2.1.1 Knowledge and understanding of facts, concepts, principles & theories		✓	✓	✓	☐	✓	✓	☐	✓	✓	✓	✓	✓	✓	☐	✓	✓	✓
2.1.2 Use of such knowledge in modelling and design			✓	☐	☐	☐	☐	☐	✓	☐	☐	✓	☐	✓	☐	✓	✓	☐
2.1.3 Problem solving strategies		✓	✓	✓	☐	☐	☐	☐	☐	✓	✓	✓	☐	✓	☐	✓	✓	✓
2.1.4 Analyse if/how a system meets current and future requirements			☐	✓	☐	☐	☐	☐	☐	☐	☐	✓	☐	✓	☐	✓	✓	☐
2.1.5 Deploy theory in design, implementation and evaluation of systems			☐	☐	☐	✓	✓	☐	✓	☐	☐	✓	☐	☐	☐	✓	✓	☐
2.1.6 Recognise legal, social, ethical & professional issues		✓	✓		☐	✓	☐	☐	☐	✓	☐	☐	☐	☐	☐	✓	☐	✓
2.1.7 Knowledge and understanding of commercial and economic issues			☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	✓	☐	☐	☐	✓
2.1.8 Knowledge of management techniques to achieve objectives			☐	☐		☐	☐	☐	☐	✓	☐		☐	✓	☐	✓	✓	☐



2.1.9 Knowledge of information security issues		✓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.2.1 Specify, design or construct computer-based systems			<input type="checkbox"/>	✓	<input type="checkbox"/>	✓	✓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✓	✓	✓	<input type="checkbox"/>	✓	✓	<input type="checkbox"/>
2.2.2 Evaluate systems in terms of quality and trade-offs		✓	✓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✓	✓	<input type="checkbox"/>
2.2.3 Recognise risk/safety for safe operation of computing equipment			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✓
2.2.4 Deploy tools effectively			✓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✓	✓	✓	<input type="checkbox"/>	✓	<input type="checkbox"/>	<input type="checkbox"/>
2.3.1 Work as a member of a development team		✓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✓	<input type="checkbox"/>	✓	<input type="checkbox"/>	<input type="checkbox"/>
2.3.2 Development of general transferable skills		✓	✓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✓	<input type="checkbox"/>	✓	<input type="checkbox"/>	✓
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Additional requirements for CITP</b>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.1.1 Deploy systems to meet business goals			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✓	<input type="checkbox"/>	✓	✓	<input type="checkbox"/>	<input type="checkbox"/>
3.1.2 Methods, techniques and tools for information modelling, management and security			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✓	✓	<input type="checkbox"/>
3.1.3 Knowledge of systems architecture			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✓	<input type="checkbox"/>	✓	<input type="checkbox"/>	✓	✓	<input type="checkbox"/>	<input type="checkbox"/>	✓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.2.1 Specify, deploy, verify and maintain information systems			✓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✓	<input type="checkbox"/>	✓	<input type="checkbox"/>	✓	<input type="checkbox"/>	<input type="checkbox"/>	✓
3.2.2 Defining problems, managing design process and evaluating outcomes		✓	<input type="checkbox"/>	✓	<input type="checkbox"/>	✓	<input type="checkbox"/>	<input type="checkbox"/>	✓	<input type="checkbox"/>	✓	✓	✓	<input type="checkbox"/>	✓	✓	✓	✓
3.2.3 System Design			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✓	<input type="checkbox"/>	<input type="checkbox"/>	✓	<input type="checkbox"/>	<input type="checkbox"/>	✓	<input type="checkbox"/>	✓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Additional requirements for CEng/CSci</b>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.1.1 Knowledge and understanding of scientific and engineering principles			<input type="checkbox"/>	✓	<input type="checkbox"/>	✓	✓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✓	<input type="checkbox"/>	✓	<input type="checkbox"/>	<input type="checkbox"/>	✓	✓	<input type="checkbox"/>
4.1.2 Knowledge and understanding of mathematical principles			✓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✓	<input type="checkbox"/>	<input type="checkbox"/>	✓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.1.3 Knowledge and understanding of computational modelling			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✓	<input type="checkbox"/>	<input type="checkbox"/>	✓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✓	<input type="checkbox"/>	<input type="checkbox"/>
4.2.1 Specify, deploy, verify and maintain computer-based systems			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✓	<input type="checkbox"/>	✓	<input type="checkbox"/>	✓	✓	✓
4.2.2 Defining problems, managing design process and evaluating outcomes			✓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✓	✓	<input type="checkbox"/>	<input type="checkbox"/>	✓	<input type="checkbox"/>	✓	<input type="checkbox"/>	✓	✓	<input type="checkbox"/>
4.2.3 Principles of appropriate supporting engineering and scientific disciplines			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Additional requirements for Integrated Masters programmes, commonly met through team based major (30 credit) project work at level or above. Assessment of:</b>																		

Application of practical and analytical skills																		
Innovation and/or creativity																		
Synthesis of information, ideas and practices																		
Awareness of wider customer contexts																		
The ability to work co-operatively																		
Critical self-evaluation of the process																		

\* For Integrated Masters, please complete the Specialist Masters Form for the final year module mappings