

University of Plymouth

Faculty of Science and Engineering

School of Computing Electronics and Mathematics

Programme Specification

BSc (Hons) Computing & Games Development 4230

September 2018

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

The BCS accreditation renewal process took place during 2017-18 academic year and the outcome will be confirmed during 2018.

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 a 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 Level 4. All modules are 20-credits

AIN155 Games Workshop	SEC104 Cybersecurity and Networks	SOFT152 Software Engineering	Semester 1
ISAD156 Databases: Analysis, Design and Development	NET111 Computer Systems	SOFT153 Algorithms, Data Structures & Maths	Semester 2
			BPIE111

Stage2. HE Level 5. All modules are 20-credits

AIN253 Design Process	AIN254 Interactive Systems Workshop	SOFT252 Object- oriented Software Engineering	Semester 1
BPIE211			
PRCO203 Live Integrating Project	AIN255 Artificial Intelligence for Game Development	Option SOFT261 or AIN252	Semester 2

Stage 3. Optional Placement Year

BPIE330: Generic Computing Placement

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

AIN354 Design for Entertainment Systems	Option 1 AIN351 AIN353 SOFT352 SOFT354	Option 2 AIN351 AIN353 SOFT352 SOFT354	Semester 1
Option 3 AIN308 AIN355	PRCO304 Computing Project		Semester 2

Stage 1 Core Modules

120 Level 4 Credits

Module Code	Module Title	Credit	Semester	Exam %	Test %	Practise %	CW %
AIN155	Games Workshop	20	S1	0	0	0	100
SEC104	Cybersecurity and Networks	20	S1	0	100	0	0
SOFT152	Software Engineering	20	S1	0	0	0	100
ISAD156	Databases: Analysis, Design and Development	20	S2	40	0	0	60
NET111	Computer Networks	20	S2	0	50	0	50
SOFT153	Algorithms, Data Structures and Mathematics	20	S2	40	0	0	60
BPIE111	Stage1 Computing Placement Preparation	0	S2	-	-	-	-

Stage 2 Core Modules

100 Level 5 Credits

Module Code	Module Title	Credit	Semester	Exam %	Test %	Practise %	CW %
AIN253	Design Process	20	S1	0	0	0	100
AIN254	Interactive Systems Workshop	20	S1	0	0	0	100
SOFT252	Object Oriented Software Engineering with Design Patterns	20	S1	0	10	0	90
AIN255	Artificial Intelligence for Game Development	20	S2	50	0	0	50
PRCO203	Live Integrating Project	20	S2	0	0	0	100
BPIE211	Stage 2 Computing 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	50	0	0	50
AIN252	Computational Theory and Artificial Intelligence	20	S2	50	0	0	50

Stage 3 Optional Placement Year

BPIE330: Generic Computing Placement

Stage 4 Core Modules

60 Level 6 Credits

Module Code	Module Title	Credit	Semester	Exam %	Test %	Practise %	CW %
AIN2354	Design for Entertainment Systems	20	S1	0	0	0	100
PRCO304	Individual Computing Project	40	S2	0	0	0	100

Stage 4 Optional Modules

60 credits optional: choose 3 options: 2 in semester 1 and 1 in semester 2.

Module Code	Module Title	Credit	Semester	Exam %	Test %	Practise %	CW %
AINT351	Machine Learning	20	S1	0	30	0	70
AINT353	Brain-inspired Cognitive Systems	20	S1	0	0	0	100
SOFT352	Client-side Web Scripting	20	S1	50	0	20	30
SOFT354	Parallel Computation and Distributed Systems	20	S1	0	0	0	100
AINT308	Machine Vision and Behavioural Computing	20	S2	0	0	0	100
AINT355	Industry Engagement	20	S2	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.

Entry Requirements for BSc (Hons) Computing & Games Development	
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	18 Units BTEC National Diploma/QCF Extended Diploma: DDM – related subjects. Acceptable Subjects: 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

2017/18 module	2018/19 module
MATH1608PP	discontinued
SOFT156PP	discontinued
SEC102PP	discontinued
AIN153PP	discontinued
AIN151	discontinued
AIN154	discontinued
SOFT254	discontinued
ISAD357	discontinued
SOFT351	suspended in 2018/19
AIN352	discontinued
ISAD362	discontinued

13. Mapping and Appendices:

13.1. ILO's against Modules Mapping

Programme Intended Learning Outcome	Related Core Modules
<p>Knowledge and understanding</p> <p>On successful completion graduates should have developed:</p> <ol style="list-style-type: none">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.	<p>NET111, SOFT252, AINT254.</p> <p>AINT155, AINT354, SOFT252.</p> <p>SEC104, AINT254, AINT354, PRCO203.</p> <p>ISAD156, SOFT152, SOFT153, SOFT261,</p>

Programme Intended Learning Outcome	Related Core Modules
<p data-bbox="225 275 667 309">Cognitive and intellectual skills</p> <p data-bbox="225 353 767 432">On completion graduates should have developed:</p> <ol data-bbox="225 477 895 1010" style="list-style-type: none"> <li data-bbox="225 477 895 600">1) An ability to evaluate a variety of hardware and software and select appropriate products for particular applications. <li data-bbox="225 607 895 730">2) An ability to critically evaluate factors that contribute to software project success and failure. <li data-bbox="225 736 895 893">3) An ability to take a holistic approach to solving problems in computer systems, applying professional judgement to balance risks and benefits. <li data-bbox="225 900 895 1010">4) Can critically evaluate systems and evidence to support conclusions and recommendations 	<p data-bbox="927 506 1198 539">PRCO203, AINT354</p> <p data-bbox="927 618 1342 696">PRCO203, AINT254 SOFT252, AINT354, PRCO304</p> <p data-bbox="927 775 1198 808">PRCO203, AINT254</p> <p data-bbox="927 931 1358 965">PRCO203, SOFT252, PRCO304</p>

Programme Intended Learning Outcome	Related Core Modules
<p>Key and transferable skills</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>AINT253, PRCO203, PRCO304, AINT354</p> <p>AINT155, AINT253, AINT354</p> <p>AINT155, AINT254, AINT354</p> <p>AINT155, AINT253, AINT254, AINT354</p>
<p>Employment related skills</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, PRCO203, PRCO304</p>

Programme Intended Learning Outcome	Related Core Modules
<p data-bbox="225 275 432 304">Practical skills</p> <p data-bbox="225 353 847 427">On successful completion graduates should have developed:</p> <ol style="list-style-type: none"> <li data-bbox="225 465 882 584">1)The necessary skills to design and implement complex computer applications, for a variety of platforms and devices. <li data-bbox="225 636 882 837">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 data-bbox="225 889 831 963">3)The necessary skills for effective project management <li data-bbox="225 1014 839 1088">4)The necessary skills to prepare technical reports. <li data-bbox="225 1140 890 1301">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. 	<p data-bbox="927 465 1331 539">AINT155, AINT253, SOFT152, SOFT252.</p> <p data-bbox="927 663 1342 770">ISAD156, AINT253, AINT254, AINT255, SOFT153, SOFT252, PRCO203, PRCO304</p> <p data-bbox="927 931 1331 963">AINT254, AINT354, PRCO304</p> <p data-bbox="927 1010 1361 1041">SOFT252, PRCO203, PRCO304</p> <p data-bbox="927 1126 1321 1200">AINT155, AINT255, AINT354, 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
Core requirements for accreditation																		
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		✓	✓		<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"/>	✓
2.1.7 Knowledge and understanding of commercial and economic 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"/>	✓
2.1.8 Knowledge of management techniques to achieve objectives			<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"/>
2.1.9 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"/>
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"/>
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"/>
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"/>	✓
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"/>
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"/>
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"/>
Additional requirements for CITP			<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"/>
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"/>
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"/>
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"/>	✓
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"/>
Additional requirements for CEng/CSci			<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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4.1.2 Knowledge and understanding of mathematical principles			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
4.2.2 Defining problems, managing design process and evaluating outcomes			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Additional requirements for Integrated Masters programmes, commonly met through team based major (30 credit) project work at level or above. Assessment of:																		
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