University of Plymouth

Academic Partnerships

City College Plymouth

Programme Specification

FdSc in Software Development

Date of Approval: 9 March 2018

Date of First Award: June 2020

1. **Final Award Title: FdSc Software Development**

   Intermediate Award: N/A

   UCAS code: G602

   JACS code: I100

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

   Teaching institution(s): **City College Plymouth**

3. **Accrediting body**(ies) **N/A**

4. Distinctive Features of the Programme and the Student Experience

A Graduate of the FdSc Software Development is someone who has studied the fundamental technical aspects of computing. They have chosen an academic pathway that enables them to develop further their understanding of how reliable and secure software is developed. They will have developed software using a variety of different paradigms, using a range of languages and will have developed confidence in being able to use any new languages that they are required to use in the future. They will understand how to use models in the software development process to model systems and organisations, and to solve complex software development problems. They will also be able to program user interfaces that are fit for their intended purpose, allowing users to interact with systems securely and safely. They will have taken opportunities to meet with local businesses in the digital industries, and applied their knowledge and skills to developing software solutions to computing problems.

Graduates of the FdSc Software Development are likely to go on to study on the BSc Computing at the University of Plymouth, but equally, they will have the confidence to seek a career, or to develop their own ideas into a business opportunity.

City College Plymouth has developed strong links with the local digital industry, the industry in which most Computing graduates will eventually be seeking employment. The College encourages active participation of its industry partners in both the development and delivery of its programmes, which enhances the experience and employability of its graduates. Industry selected problems are incorporated into the assessment which are then presented to the client/sponsor and the students are given the opportunity to reflect on work based learning skills gained from this experience.

Within Computing, the main method of delivery is to small groups of up to 20 students. As well as providing the core knowledge that students of computing require, there is a focus on project work and collaboration between students, not only within their group but across the range of Higher Education programmes delivered by the College, and with industry partners and clients. This provides a broader range of experiences for students and enhances their communication, collaboration and practical skills.

All of computing delivery is in the new STEM (Science, Technology, Engineering and Maths) Centre on Kings Road, providing a stimulating and comfortable learning environment where students can find all the hardware and software they need for their particular field of study, whilst sharing that environment with students studying in a range of science, creative and digital related subjects.

In addition to the new learning environment, Computing students have exclusive use of four dedicated computing labs, and a research space. Two of the labs offer their own dedicated networking environments to allow for experimentation in networking and security, whilst the software suites offer the student a range of open source and proprietary software to enhance the practical side of their education. Computing subscribes to Microsoft's Imagine programme, and is therefore able to provide students with fully licensed development software from Microsoft, as well as supporting the many open source options. This investment in resources continues on an annual basis ensuring that facilities are up to date and relevant.

All Computing programmes are delivered by a strong team with a depth and breadth to both academic and industry experience. Lecturers are here to teach, support and develop the knowledge and understanding of the subject that students have chosen to study. The timetable will also be designed with students in mind and in most cases Computing students will benefit from a compact timetable that suits their needs, and that is consistent across the whole year, enabling them to plan the rest of their busy life around it.

The FdSc in Software Development will allow students to make full use of the opportunities offered by the College and its Partnership with industry and the University, whilst focussing on the specific area of Software Development. Students will study the underlying principles of Software Development whilst enhancing their practical skills using the range of current industry tools and techniques. Students will have the opportunity to develop real systems, for real clients which may be either internal or external to the College and will have the opportunity to meet with, and learn from, industry partners. During their first year, students will share units with the other Computing Programmes, and can therefore make a more informed choice about the particular field of computing in which they ultimately wish to specialise. Dedicated students of the FdSc in Software Development will graduate as highly employable individuals with a broad experience of the computing subject, along with a specialist knowledge, and practical skills in Software Development.

5. Relevant QAA Subject Benchmark Group(s)

The FdSc in Software Development has been developed in consultation with various sources, both local and national, alongside our own significant experience. In particular, it considers the **QAA Subject Benchmark Statement for Computing**, the Department for Digital, Culture, Media and Sport's **UK Digital Strategy** policy paper, the **ACM/IEEE Computing Curricula Recommendations** and the **Foundation Degree Characteristics Statement**. In order to ensure delivery at the appropriate level, the Programme aligns learning outcomes with the **FHEQ** descriptors. The Programme also considers the needs of our local **industry partners**, in order to ensure that it supports the growth of the digital sector, and, thus, contributes to sustained economic growth in the region.

Like other types of Computing degree programme, the FdSc in Software Development is "designed to equip graduates with knowledge, understanding and skills which will enable them to begin a professional career in some aspect of Computing" (QAA, 2016). However, the College does not anticipate the particular area of Computing in which student may wish to specialise, nor does it expect all of its graduates to seek employment in the Computing sector. In it's UK Digital Strategy policy paper (DCMS, 2017) the Department for Digital, Culture, Media and Sport demonstrates that there are a significant number of computing related careers in non-digital Industries. In addition to developing students' "understanding of the established principles in their field of study" (QAA, 2015), the FdSc in Software Development embeds employability, minimum core, communication and critical thinking skills, to ensure that our Graduates have the best opportunity to gain employment in their chosen sector on graduation.

The College understands the desire of its graduates to progress to further study at level 6 and beyond. Therefore, as well as aligning its Learning Outcomes with the FHEQ descriptors at the appropriate level (QAA 2008), the Programme is cognisant of the higher level descriptors, ensuring graduates are adequately equipped to succeed should they continue with their education.

Whilst the College does not have a specific Industrial Advisory Board for Computing, it does work with a number of industry groups and partners in order to ensure that the curriculum is relevant and that its graduates are employable. Partners include Digital Plymouth, Software Cornwall, the Digital Policy Alliance and a variety of local and national organisations, who have either directly or indirectly contributed to the Programme.

IN PARTNERSHIP WITH PLYMOUTH UNIVERSITY

6. Programme Structure for the FdSc Software Development (full-time) 2019/20

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Stage 1 = 120 Level 4 Credits			
Semester 1			
Module Code	**Module Title**	**Credits**	**Core/ Optional**
CITY1101	Object Oriented Programming	20	Core
CITY1102	Computer Systems	20	Core
CITY1103	Mathematics for Computing	20	Core
Semester 2			
Module Code	**Module Title**	**Credits**	**Core/ Optional**
CITY1104	Computer Networks	20	Core
CITY1105	Web Development	20	Core
CITY1106	Database Development	20	Core

Stage 2 = 120 Level 5 Credits			
Semester 1			
Module Code	**Module Title**	**Credits**	**Core/ Optional**
CITY2105	Computing Team Project *	20	Core (AY)
CITY2106	Web And Mobile Application Development	20	Core
CITY2108	Software Development	20	Core
CITY2109	Human Computer Interaction*	20	Core (AY)
Semester 2			
Module Code	**Module Title**	**Credits**	**Core/Optional**
CITY2118	Systems Analysis	20	Core
CITY2109	Human Computer Interaction*	20	Core (AY)
CITY2117	Data Structures and Algorithms	20	Core
CITY2105	Computing Team Project *	20	Core (AY)

* Stage 2 – CITY 2105 and CITY 2109 run across both Semesters at stage 2

7. Programme Structure for the FdSc Software Development (part-time) 2018/19

Year 1 = 80 Level 4 Credits			
Module Code (level)	**Module Title**	**Credits**	**Core / Optional**
Semester 1			
CITY1101(4)	Object Oriented Programming	20	Core
CITY1102(4)	Computer Systems	20	Core
Semester 2			
CITY1104(4)	Computer Networks	20	Core
CITY1106(4)	Database Development	20	Core

Year 2 = 40 Level 4 Credits, 40 Level 5 Credits Total 80 Credits			
Module Code (level)	**Module Title**	**Credits**	**Core / Optional**
Semester 1			
CITY1103(4)	Mathematics for Computing	20	Core
CITY1105(4)	Web Development	20	Core
Semester 2			
CITY2108(5)	Software Development	20	Core
CITY2118(5)	Systems Analysis	20	Core (AY)

Year 3 = 80 Level 5 Credits			
Module Code	**Module Title**	**No. of Credits**	**Core / Optional**
Semester 1			
CITY2105(5)	Computing Team Project*	20	Core (AY)
CITY2109(5)	Human Computer Interaction*	20	Core (AY)
CITY2106(5)	Web And Mobile Application Development	20	Core
Semester 2			
CITY2105(5)	Computing Team Project*	20	Core (AY)

CITY2109(5)	Human Computer Interaction*	20	Core (AY)
CITY2117(5)	Data Structures and Algorithms	20	Core

Note: CITY 2106 will run in Semester 2 for part-time students; CITY1105 will run in Semester 1 for Part-time students

8. Programme Aims

The FdSc in Software Development aims to:

- Provide learners with knowledge and critical understanding of the principles of Computing and how they have developed
- To equip graduates with knowledge, understanding and skills which will enable them to begin a professional career in Programming, Software Design, Software Development, or Systems Analysis using a range of programming languages and development environments
- Enable learners to continue in education or training in order to further develop existing skills or develop new competences in Software Development or any other discipline.
- Enable learners to collaborate on Computing and Software projects to develop their understanding of the nature of collaborative work in the context of Software Development, and the skills required for it to succeed
- Enable learners to make a contribution to the digital community in the region and beyond, both during and on completing the course
- Provide quality HE within an FE environment to support widening participation, and to provide learners with the best opportunity to achieve their potential

9. Programme Intended Learning Outcomes

8.1. Knowledge and understanding

On successful completion graduates should have developed:

1) A knowledge and critical understanding of the computing discipline as a whole and its application
2) A knowledge and critical understanding of the principles of programming, and software development in a range of paradigms
3) A knowledge and critical understanding of the role of modelling and systems analysis in software design and development

8.2. Cognitive and intellectual skills

On successful completion graduates should have developed:

1) Their ability to learn independently and apply that learning to new problems
2) Their ability to analyse complex problems and evaluate solutions

8.3. Key and transferable skills

On successful completion graduates should have developed the ability to:

1) Work collaboratively with others in order to solve problems
2) Communicate effectively with a variety of audiences
3) Apply critical thinking skills to their acquisition and application of knowledge

8.4. Employment related skills

On successful completion graduates should have developed:

1) Their ability to complete tasks in a timely manner and to a required standard
2) Their ability to develop and deliver a product to a client
3) Their understanding of the role of computer systems in a variety of industry contexts

8.5. Practical skills

On successful completion graduates should have developed:

1) Their ability to analyse systems and to create models of software system structure and behaviour
2) Their ability to design, build and test software systems in a variety of contexts using different paradigms

3) Their ability to select and apply a variety of tools for the development of a software solution

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

10. All applicants must have, or be working towards, a qualification equivalent to GCSE in Maths and in English at Grade a grade equivalent to C or above.

Entry Requirements for FdSc in Computer Systems Development	
A-level/AS-level	Normal minimum entry requirements are DD at A-level (48 UCAS Points) to include a numerate subject (e.g. Computing, Maths, Science).
BTEC National Diploma/QCF Extended Diploma	Candidates are interviewed before an offer is made. Grade PPP for Extended Diploma and MM for 90-Credit Diploma (48 UCAS Points).
Access to Higher Education at level 3	Candidates are interviewed before an offer is made. Pass in an Access to HE Diploma in Computing or Science with 45 credits at Level 3.
Other Qualifications	Non-traditional candidates with alternative equivalent qualifications will be considered. Candidates without the above qualifications, but who can demonstrate relevant industry experience are encouraged to apply.
Direct Entry to Stage 2 (Level 5)	Students may enter at level 5 with a relevant HNC made up of 120 level 4 module credits subject to the University of Plymouth APL regulations.

11. Progression criteria for Final and Intermediate Awards

Upon successful completion of the FdSc Software Development, students will be able to progress onto the following course at Level 6.

- BSc (Hons) Computing at University of Plymouth

12. Non Standard Regulations

None

13. Transitional Arrangements

Students on the current FdSc in Software Development will continue on the existing programme until their studies are complete.

Appendices

Appendix 1: Programme Specification Mapping (UG): module contribution to the meeting of Programme Learning Outcomes

FdSc Software Development Core Modules		Programme Learning Outcomes contributed to																Compensation Y/N	Assessment Element(s) and weightings E1- exam T1- test C1- coursework A1 – generic assessment P1 - practical
		8.1 Knowledge & understanding			8.2 Cognitive & intellectual skills			8.3 Key & transferable skills			8.4 Employment related skills			8.5 Practical skills					
		1	2	3	1	2		1	2	3	1	2	3	1	2	3			
Level 4	**CITY1101 Object Oriented Programming**	/				/			/	/	/	/	/	/	/			Y	C1 60% P1 40%
	CITY1102 Computer Systems	/	/			/				/	/			/				Y	E1 30% C1 70%
	CITY1103 Mathematics for Computing	/				/				/	/		/					Y	E1 50% C1 50%
	CITY1104 Computer Networks	/	/	/		/			/	/	/				/	/		Y	C1 50% P1 50%
	CITY1105 Web Development	/				/			/	/	/	/	/	/	/			Y	C1 60% P1 40%
	CITY1106 Database Development	/	/			/			/	/	/	/	/	/	/			Y	C1 70% P1 30%
Level 5	**CITY2105 Computing Team Project**	/			/	/		/	/	/	/	/	/	/	/			Y	C1 70% P1 30%
	CITY2106 Web and Mobile Application Development	/	/		/	/		/	/	/	/	/	/	/	/	/		Y	C1 50% P1 50%
	CITY2109 Human Computer Interaction	/	/	/	/	/		/	/	/	/	/	/	/	/	/		Y	C1 60% P1 40%
	CITY2108 Software Development		/	/	/	/		/	/	/	/		/	/	/	/		Y	C1 60% P1 40%
	CITY2118 Systems Analysis	/	/		/	/				/	/		/		/			Y	E1 50% C1 50%
	CITY2117 Data Structures and Algorithms				/	/					/			/	/	/		Y	E1 50% C150%
Confirmed Award LOs		/	/	/	/	/		/	/	/	/	/	/	/	/	/			

Appendix 2: Work Based Learning Mapping

FHEQ L4					
WBL/WRL Activity:	**Logistics**	**Programme Aim**	**Programme Intended Learning outcome**	**Range of Assessments**	**Related Core Modules**
Practical Skills	Practical skills are fundamental to the programme and students will be taught in labs for almost all of their sessions.	5.2, 5.4	8.5.1, 8.5.2, 8.5.3	Implementation of software, networks and databases. Creation or materials to present findings, including screencasts and practical demonstrations	All modules with a coursework element, but particularly those with a practical element: CITY1101, CITY1104, CITY1105, CITY1106
Problem Based Learning/Project Management	A number of coursework assignments include development of hardware or software systems. These will require adequate planning and management of time and resources.	5.2, 5.4	8.2.1, 8.2.2, 8.3.1, 8.3.3, 8.4.1, 8.4.2, 8.5.1, 8.5.2, 8.5.3	Development of software, and hardware solutions	All modules with a coursework but most significantly: CITY1101, CITY1104, CITY1105, CITY1106
Site Visits	Visiting IT organisations within the region to see facilities and meet employees.	5.3, 5.5	8.4.3	This is not formally assessed as part of the programme.	Visits are more likely to relate to software and networking units: CITY1101, CITY1104, CITY1105, CITY1106
Presentations	A number of units have a practical assignment that either includes a presentation or demonstration of practical work.	5.2, 5.3, 5.5	8.3.2, 8.4.2	Individual and group presentations, screencasts, demonstrations of hardware and software	All modules with a coursework element, but particularly those with a practical element: CITY1101, CITY1104, CITY1105, CITY1106

Industry Events and Guest Speakers	A number of industry events are held in the region throughout the year that staff and students attend. We also arrange a number of external speakers from industry to come and speak to our students	5.3, 5.5	8.4.3	This is not formally assessed as part of the programme.	Visits are more likely to relate to software and networking units: CITY1101, CITY1104, CITY1105, CITY1106 Speakers can be invited to cover any topic both academic and industry based, and will be determined by availability.

FHEQ L5					
WBL/WRL Activity:	**Logistics**	**Programme Aim**	**Programme Intended Learning outcome**	**Range of Assessments**	**Related Core Modules**
Practical Skills	Practical skills are fundamental to the programme and students will be taught in labs for almost all of their sessions.	5.2, 5.4	8.5.1, 8.5.2, 8.5.3	Implementation of software, networks and databases. Creation or materials to present findings, including screencasts and practical demonstrations	All modules with a coursework element, but particularly those with a practical element: CITY2105, CITY2106, CITY2109, CITY2108
Problem Based Learning/Project Management	A number of coursework assignments include development of	5.2, 5.4	8.2.1, 8.2.2, 8.3.1, 8.3.3, 8.4.1, 8.4.2, 8.5.1, 8.5.2, 8.5.3	Development of software, and	All modules contain elements of either project management (CITY2105, CITY2106, CITY2108)

	hardware or software systems. These will require adequate planning and management of time and resources.			hardware solutions	and problem based learning (CITY2118 and CITY2117)
Site Visits	Visiting IT organisations within the region to see facilities and meet employees.	5.3, 5.5	8.4.3	This is not formally assessed as part of the programme.	Visits can now relate more Software Development, but students can be involved in any other visits both technical and non-technical. More likely to relate to : CITY2105, CITY2106, CITY2109, CITY2108, CITY2118.
Presentations	A number of units have a practical assignment that either includes a presentation or demonstration of practical work.	5.2, 5.3, 5.5	8.3.2, 8.4.2	Individual and group presentations, screencasts, demonstrations of hardware and software	All modules with a coursework element, but particularly those with a practical element: CITY2105, CITY2106, CITY2109, CITY2108
Industry Events and Guest Speakers	A number of industry events are held in the region throughout the year that staff and students attend. We also arrange a number of external speakers from industry to come and speak to our students	5.3, 5.5	8.4.3	This is not formally assessed as part of the programme.	Events can now relate more to Software Development, but students can be involved in any other visits both technical and non-technical. More likely to relate to: CITY2105, CITY2106, CITY2109, CITY2108, CITY2118.