BSc(Hons) Computing for Games

Student Handbook

2017-18

FALMOUTH
UNIVERSITY

BSc(Hons) Computing for Games — Student Handbook

DOI: 10.13140/2.1.3680.9281

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Section 1

Study Block I

Principles of Computing

Module Code	COMP110	
Module Credits	20	
Status	Compulsory	
Module Leader	Dr Edward Powley Dr Michael Scott (Moderator)	
Assignments	Worksheet Tasks	80%
	Research Journal	20%
Indicative Hours	Sessions	36 hours
	Directed Reading	18 hours
	Worksheet Tasks	56 hours
	Research Journal	14 hours
	Self-Directed Study	36 hours
	Self-Directed Studio Practice	40 hours
		200 hours

Introduction

This module is designed to introduce you to the basic principles of computing in the context of digital games. It is designed to complement the other modules, providing a broad foundation on the theories, methods, models, and techniques in computing which will help you to construct computer programs and be able to make use of relevant scholarly sources.

Aims

This module aims to help you:

- Understand the basic principles, terminology, roles, and software development concept that computing professionals apply within a game development context
- Understand how to apply computing theory to practical programming activities
- Understand how to conduct basic software development tasks

Resource List

`http://resourcelists.falmouth.ac.uk/modules/comp110`

Learning Space

`http://learningspace.falmouth.ac.uk/course/view.php?id=\learningSpaceID`

LO	Learning Outcomes	Assessment Criteria
1	Show a basic understanding of creative computing solutions using professional techniques.	Demonstrate a basic understanding of computing fundamentals. Apply basic knowledge and understanding of the techniques used in software development. Understand the creative value of maker-style and iterative approaches for the generation of innovation.
2	Show a basic understanding of how to communicate effectively with stakeholders in writing, verbally and through adherence to coding standards.	Show a basic understanding of how to communicate effectively with stakeholders in writing, verbally, and through adherence to coding standards. Annotate software to communicate with others effectively.
3	Show a basic development of the ability to reflect critically on and evaluate working methods and solutions.	Analyse critically the strengths and weaknesses of code and develop an ability to respond to the critical judgements of others.
4	Show a basic understanding of the ability to conduct research, present knowledge in an academic format and apply that research to practice.	Research and explain the use of methodologies used in computing, apply knowledge to practice, and present that knowledge where appropriate in an academic format.
6	Show a basic understanding of methods used to help set goals, manage workloads to meet deadlines and to work collaboratively.	Set goals and manage workloads to meet deadlines using set methodologies and present ideas in a variety of situations with appropriate support.

Creative Computing: Tinkering

Module Code	COMP120	
Module Credits	20	
Status	Compulsory	
Module Leader	Brian McDonald Dr Michael Scott (Moderator)	
Assignments	Code Repurposing I — Tinkering Graphics	30%
	Code Repurposing II — Tinkering Audio	70%
Indicative Hours	Sessions	36 hours
	Directed Reading	18 hours
	Graphics Programming	21 hours
	Audio Programming	49 hours
	Self-Directed Programming Practice	36 hours
	Self-Directed Studio Practice	40 hours
		200 hours

Introduction

This module is designed to help you learn different ways of engaging with code using practical and explorative methods. You will learn the value of taking a creative approach to computing, taking existing code and modifying it in creative ways. The module will introduce you to the core principal of rapid iteration, where tinkering with existing code can provide the basics on which something new can be built.

Aims

This module aims to help you:

- Understand computing for games
- Understand how to re-purpose and augment code to build something new
- Apply programming skills creatively

Resource List

`http://resourcelists.falmouth.ac.uk/modules/comp120`

Learning Space

`http://learningspace.falmouth.ac.uk/course/view.php?id=\learningSpaceID`

LO	Learning Outcomes	Assessment Criteria
1	Show a basic understanding of creative computing solutions using professional techniques.	Focusing on software engineering, show ability to modify and repurpose existing code and create demonstrations of digital programming in response to briefs.
2	Show a basic understanding of how to communicate effectively with stakeholders in writing, verbally and through adherence to coding standards.	Annotate software clearly, articulate clearly, and succinctly your evaluation of your working practice.
3	Show a basic development of the ability to reflect critically on and evaluate working methods and solutions.	Evaluate your working practice showing that you understand the analytical approach required to learn from your practical work.
5	Show a basic understanding of how to approach computing problems to create innovative solutions.	Show ability to creatively repurpose existing code appropriately and understand the fundamentals of a creative approach to computing.
6	Show a basic understanding of methods used to help set goals, manage workloads to meet deadlines and to work collaboratively.	Show understanding of agile methods and meet deadlines by planning available time effectively.

Game Development Practice

Module Code	COMP150	
Module Credits	20	
Status	Compulsory	
Module Leader	Dr Michael Scott Dr Edward Powley (Moderator) Brian McDonald (Moderator)	
Assignments	Agile Essay	30%
	Pre-Production Tasks	40%
	Game Design Pitches	10%
	CPD Tasks	20%
Indicative Hours	Sessions	36 hours
	Supervised Studio Practice	42 hours
	Directed Reading	12 hours
	Agile Essay	21 hours
	Pre-Production Tasks	28 hours
	Game Design & Pitch Preparation	7 hours
	CPD Tasks	14 hours
	Self-Directed Studio Practice	40 hours
		200 hours

Introduction

This module is designed to introduce you to the foundational principles and processes of professional game development. You will gain an understanding of the way that different components come together to make playable games and how those components are organised through the development pipeline. You will also gain a 'first principles' understanding of how games are designed with a target market in mind, how a strong underlying concept is developed, and how different aspects of creative computing contribute to the process.

Aims

This module aims to help you:

- Understand the basic principles, terminology, roles, tools, and software used in the development of digital games
- Apply foundational knowledge and skills in order to organise and execute a game development project
- Understand how to manage a collective game development project and communicate effectively within the development group

Resource List

`http://resourcelists.falmouth.ac.uk/modules/comp150`

Learning Space

http://learningspace.falmouth.ac.uk/course/view.php?id=\learningSpaceID

LO	Learning Outcomes	Assessment Criteria
1	Show a basic understanding of creative computing solutions using professional techniques.	Apply basic knowledge and understanding of the professional techniques used to create digital games and employ elementary principles of game development to devise a simple game concept using Agile and iterative methods.
2	Show a basic understanding of how to communicate effectively with stakeholders in writing, verbally and through adherence to coding standards.	Organise your ideas and material to communicate clearly with others; have a working knowledge of Agile methods.
3	Show a basic development of the ability to reflect critically on and evaluate working methods and solutions.	Identify and appraise the main strengths and weakness of your working methods and solutions.
4	Show a basic understanding of the ability to conduct research, present knowledge in an academic format and apply that research to practice.	Research uses of Agile methods and supports within the context of game development.
5	Show a basic understanding of how to approach computing problems to create innovative solutions.	Show a basic understanding of the commercial and enterprise context of the games industry and the professional qualities needed for decision-making within that context.
6	Show a basic understanding of methods used to help set goals, manage workloads to meet deadlines and to work collaboratively.	Deliver a collective game concept on time and to brief, responding appropriately to problems and changes in direction. Choose appropriate means to convey your development ideas.

Section 2

Study Block II

Creative Computing: Codecraft

Module Code	COMP140	
Module Credits	20	
Status	Compulsory	
Module Leader	Brian McDonald Alcywn Parker Martin Cooke (Moderator)	
Assignments	Code Combination I — API Tasks	30%
	Code Combination II — Individual Game & Controller	70%
Indicative Hours	Sessions	36 hours
	Directed Reading	18 hours
	API Tasks	24 hours
	Individual Game & Controller	46 hours
	Self-Directed Study	36 hours
	Self-Directed Studio Practice	40 hours
		200 hours

Introduction

This module enables you to further develop confidence with object-orientated programming in C/C++ and the creative approach to computing in the games development context. You will take code in multiple contexts, and learn ways and methods for bringing these together in synthesis in order to build more interesting and complex systems. Part of this will involve ‘hacking’ together different sets of open-source code, hardware, and web services together; all the while considering issues such as intellectual property law.

Aims

This module aims to help you:

- Understand professionalism in the games industry
- Understand how to organise, repurpose, and augment code from multiple sources to build a unified solution
- Understand how to generate innovation at a basic level

Resource List

`http://resourcelists.falmouth.ac.uk/modules/comp140`

Learning Space

`http://learningspace.falmouth.ac.uk/course/view.php?id=\learningSpaceID`

LO	Learning Outcomes	Assessment Criteria
1	Show a basic understanding of creative computing solutions using professional techniques.	To modify and repurpose existing code from multiple sources and apply the basic principles of software engineering to solve problems.
3	Show a basic development of the ability to reflect critically on and evaluate working methods and solutions.	Evaluate your working practice showing that you understand the analytical approach required to learn from your practical work.
5	Show a basic understanding of how to approach computing problems to create innovative solutions.	To creatively repurpose existing code from multiple sources towards a unified solution and use a combination of sources to generate ideas and new solutions.
6	Show a basic understanding of methods used to help set goals, manage workloads to meet deadlines and to work collaboratively.	Meet deadlines by planning available time effectively and show an understanding of how to plan and manage time.

Game Architecture & Engineering

Module Code	COMP130	
Module Credits	40	
Status	Compulsory	
Module Leader	Dr Michael Scott	
	Dr Edward Powley (Moderator)	
	Brian McDonald (Moderator)	
Assignments	Software Engineering Essay	30%
	Production Tasks	40%
	Game Demo	10%
	CPD Tasks	20%
Indicative Hours	Sessions	48 hours
	Supervised Studio Practice	94 hours
	Directed Reading	36 hours
	Software Engineering Essay	42 hours
	Production Tasks	56 hours
	Game Demo Preparation	14 hours
	CPD Tasks	28 hours
	Self-Directed Game Development Practice	42 hours
	Self-Directed Studio Practice	40 hours
		400 hours

Introduction

This module helps you extend your practical experience and knowledge of game development practices. You will engage in depth with the principles of professional software engineering in the context of a collaborative multi-disciplinary project. All the while, researching the importance of software quality and applying your findings to shape, measure, and improve the computing solutions that you integrate into your game.

Aims

This module aims to help you:

- Acquire knowledge of professional software architecture and engineering in the context of games.
- Apply research findings to the development of a game architecture in a collaborative context.
- Implement software design principles and engineering practices at a foundational level.

Resource List

`http://resourcelists.falmouth.ac.uk/modules/comp130`

Learning Space

`http://learningspace.falmouth.ac.uk/course/view.php?id=\learningSpaceID`

LO	Learning Outcomes	Assessment Criteria
1	Show a basic understanding of creative computing solutions using professional techniques.	Understand the fundamental use of development tools, how games vary between different architectures, and the importance and methods of reuse and scalability within professional software engineering.
2	Show a basic understanding of how to communicate effectively with stakeholders in writing, verbally and through adherence to coding standards.	Show a basic understanding of how to communicate effectively with stakeholders in writing, and through adherence to coding standards. Annotate software to communicate with others effectively.
3	Show a basic development of the ability to reflect critically on and evaluate working methods and solutions.	Analyse critically the strengths and weaknesses of your code and develop an ability to respond to the critical judgements of others. Identify recurring problems across diverse examples in order to build collective solutions.
4	Show a basic understanding of the ability to conduct research, present knowledge in an academic format and apply that research to practice.	Apply basic research methodologies to draw upon existing bodies of knowledge in professional software engineering to understand developments in game architectures, notably design patterns as they occur in games development.
5	Show a basic understanding of how to approach computing problems to create innovative solutions.	Demonstrate an understanding of the commercial and enterprise constraints that game markets place on technical decisions through requirements to engineer extensible and adaptable solutions.
6	Show a basic understanding of methods used to help set goals, manage workloads to meet deadlines and to work collaboratively.	Show an understanding of how to plan and manage time, meet deadlines by planning available time effectively.