



Computing Subject Area **Induction**



Computing Subject Area

Welcome!

You are here because you have enrolled on one of the following courses:

- BA(Hons) Game Development: Programming
- BSc(Hons) Computing for Games
- BSc(Hons) Immersive Computing
- BSc(Hons) Web Development

All of these courses have a common first-year focused on computing fundamentals and practical projects.



Computing Subject Area

The ACM define the 'computing professional' as:

Someone belonging to a broad discipline that crosses the boundaries between mathematics, science, engineering, and business. They embody important professional competencies lying at the foundation of goal-oriented activities requiring, benefiting from, or creating computation. Computation being any type of calculation that includes both arithmetical and non-arithmetical steps following a well-defined model, typically an algorithm.

You are here because you want to become a **computing professional**.



Computing Subject Area

The discipline consists of five sub-disciplines:

- Computer Engineering
- Computer Science
- Information Systems
- Information Technology
- Software Engineering

Roles such as *games programmer* and *web developer* usually draw on several of these sub-disciplines with different emphases.



Learning Outcomes

By the end of this session, you should be able to:

- Recognise who your tutors are
- Outline what the Games Academy offers from a computing perspective
- Explain the career paths and key learning objectives that our computing courses cater to
- Suggest some of the kinds of question that excite game scholars within and around the computing discipline
- Recall the structure of the course



Learning Outcomes

By the end of this session, you should be able to:

- Contrast what is expected of students in the higher education context to the compulsory education context
- Analyse how to invest sufficient time in both course activities as well as self-regulated deliberate practice to achieve key goals
- Recall the role of the DolT Profiler in identifying individual learning differences





Course Tutors

































The Games Academy











Awarded TEF Gold Status



Teaching Excellence Framework





























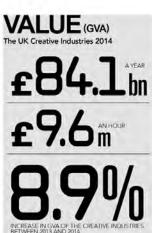


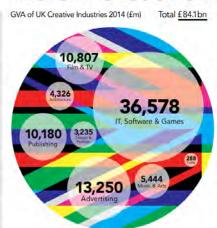
We Attract **Industry Legends** as Visiting Lecturers

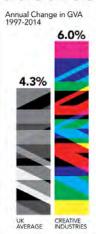




The UK Creative Industries







www.thecreativeindustries.co.uk
Source: DCMS Creative Industries Economic Estimates Lamany 2016

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TECH ** NATION

127%

GVA GROWTH Growth in GVA from 2010-2014

TECH CITY

Nesta.

@TechCityUK

@nesta_uk

Truro, Redruth & Camborne

Visit: techcityuk.com/technation



£31m

TOTAL GVA

Total output (good or service) minus value of inputs

TECH NATION



NA RADIO PROGRAM WITH Nesta...

DIGITAL TECH **ECONOMY**

1.56m jobs'

Job creation 2.8x faster than the rest of the economy (2011-2014)



£50,000

advertised salary 36%

higher than the national advertised average



Digital Tech Economy jobs exist within traditionally non-digital industries'

DIGITAL TECH INDUSTRIES





Grew 32% faster than the rest of the economy (2010-2014)

58,000

identified active digital tech businesses*

TOP SECTORS⁴

App & Software Development

Dista Management & Analytics

Hardware, Devices & Open Source

+180% TRUBO REPRUTH & CAMBORNE +153%

DUNDEE +129%

DIGITAL JOBS!

LONDON +101% BRISTOL & BATH +53%

LONDON

328,223

MANCHESTER

READING & BRACKWELL

51,901

40,440

RIDSANGHAM

36,768

36,547

BRISTOL & BATH

PRODUCTIVITY³
(SALES PER WORKER) BRISTOL & BATH

£296,340 LONDON

READING & BRACKNELL £196,800 SOUTHAMPTON

£171,720 OXFORD

SOUTHAMPTON £170,460 +25%

DIGITAL TURNOVER

TOTAL LONDON £62.4bn

READING & BRACKWELL £10bn BRISTOL & BATH £8,2bn

MANCHESTER £2.2bn BIRMINOHAM £1.8bn

DIGITAL TURNOVER GROWTH (2010-2014)² SOUTHAMPTON

digital tech businesses the UK



DIGITAL SALARY GROWTH (2012-2015)

NEWCASTLE & DURHAM

LEEDS

+29%

+27%

+26%

+26%

EDINBURGH

SUNDERLAND.











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- Knowledge of effective team-working tactics is essential (though there are many ways of working)



Computing professionals tend to:

▶ Deal with the technical side of creative development



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- ▶ Be people who are comfortable with mathematics and science
- Keep up with the fast-paced field of computer technology
- Straddle the arts and sciences, being able to draw together elements from both
- Have expertise in software engineering and computer science, with an ability to conduct independent research

There is a wide range of technical roles in game studios:

- ► Technical Director / CTO
- ► Gameplay Programmer
- ▶ Engine Programmer
- ▶ Physics Programmer
- ▶ Al Programmer
- Network Programmer
- Graphics Programmer
- ▶ Web Programmer

- ▶ Tools Programmer
- ► UX / UI Programmer
- Middleware / Technology Developer
- ► Porting Programmer
- Level Scripter
- Audio Engineer
- Data Scientist



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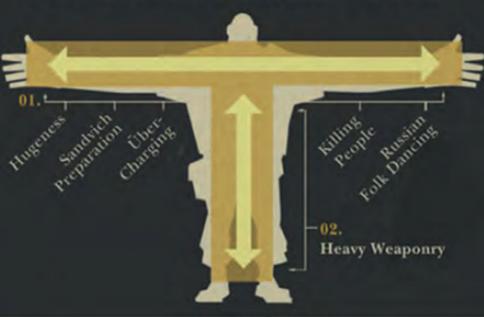


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- Administrate: the games industry isn't just about development, there is a huge range of other career paths, such as human resources and IT

T-SHAPED MODEL: EMPLOYEE







Your Course



Student Voice

Courses in the computing subject area are rated:

- ► **#7** Teaching (4.3 / 5.0)
- ▶ #7 Learning Opportunities (4.4 / 5.0)
- ▶ #6 Assessment and Feedback (4.4 / 5.0)
- ▶ #11 Academic Support (4.4 / 5.0)
- #7 Organisation and Management (4.3 / 5.0)
- ▶ #5 Learning Resources (4.4 / 5.0)
- ▶ #5 Learning Community (4.4 / 5.0)
- ▶ #5 Student Voice (4.3 / 5.0)
- ▶ #10 for Overall Student Satisfaction (89%)

(Out of 68 other undergraduate courses)

Student Voice

- ► I want the course to be #1 in every measure, so please engage with us!
- ► Over 80% of the COMP modules we offer are in the top-10% of all modules Falmouth offers, as rated by student evaluations
 - COMP250: Artificial Intelligence in top-1%
- ► About 33% contact-time on all modules

You will soon be asked nominate someone to represent your interests in the student-staff liaison group. There are representatives for each cohort. Establishing a working democracy is vital important to the health of your student experience. You *shape* the course!



You Said, We Did

Improvements this year based on NSS data:



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- "My course has challenged me to achieve my best work" (-13)
 - Briefs are more open-ended with new rubrics to show how to access marks and reach higher attainment
- "My course has provided me with opportunities to bring information and ideas together from different topics" (-1)
 - Module leaders now coordinate topics and assignments to better highlight synergies



- "I have been able to contact staff when I needed to" (-12)
 - New policy to respond to email within 24-hours on working days during term time
 - Personal tutors can now be booked for meetings in their office hours via the main course page
 - Screens now show who is on-duty for studio supervision.
 - ► Technicians have extended studio hours



- "The course is well organised and running smoothly" (-2)
 - The Making the Curriculum Clearer project now implemented.
 - Simplified course structure, fewer assignments, and more sharing of modules across the Academy.



- "The timetable works efficiently for me." (-10)
 - Administrative processes previously leading to group activity mis-allocation revised.
 - Everyone in a group shares the same group project module with the same sequence of activities.
 - Fewer critiques, with emphasis on more meaningful group activities and play-testing.



Programming Tutors

In study block 1, each student is allocated a tutor:

- Small group meetings each week for each module
- Run by an experienced member of staff in the games academy
- There to help you, only a message away
- Big help on COMP110 and COMP120, especially for newer programmers

We may juggle the groups once we get to know you a bit better so we can offer the most appropriate support for you



PASS Sessions

Peer assisted study sessions:

- ▶ To be scheduled
- Run by volunteers who have been successful with the course
- Awesome community
- Great place to get help and support with writing/programming/maths





By the end of this year, you should be confidently able to:

▶ Code: Translate technical notation into executable code.



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- Architect Solutions: Translate requirements into suitable technical notation.



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- Architect Solutions: Translate requirements into suitable technical notation.
- Solve Problems: Demonstrate computational thinking and numeracy skills.





By the end of this year, you should be confidently able to:

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- Research: Report on an issue using appropriate sources and academic conventions.
- Reflect: Identify professional attributes and illustrate how they are relevant to your practice.



Learning Objectives

The objectives of this course are to facilitate the development of your:

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Learning Objectives

The objectives of this course are to facilitate the development of your:

- Collaborate: Define suitable development practices, project management approaches, and version control techniques used in the execution of a collaborative project.
- ▶ Pitch: Identify your role within a creative studio culture.
- Deliver: Describe how to create and test prototypes in order to deliver an interesting experience.



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- Emphasis on developing community, and discourse/peer-review within that community
 - Do it together and learn from each other, before doing it alone
 - Critique each others' work and discuss what constitutes good practice



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- Emphasis on developing community, and discourse/peer-review within that community
 - Do it together and learn from each other, before doing it alone
 - Critique each others' work and discuss what constitutes good practice
- Emphasis on feed-forward over just feed-back
 - Early milestones, earlier start, more learning
 - Get advice on how to improve your own practice before you submit your work

- Emphasis on highly structured assignments
 - ► Formative work across the study block
 - Easy to pass for successfully completing all in-class activities with basic competence and submitting on-time
 - Face-to-face feedback and discussion in assessment by viva



- Emphasis on highly structured assignments
 - Formative work across the study block
 - Easy to pass for successfully completing all in-class activities with basic competence and submitting on-time
 - Face-to-face feedback and discussion in assessment by viva
- Emphasis on continuing personal development
 - Personal growth over hitting a benchmark
 - Journey to professional competency and beyond, rather than hitting a grade
 - Rubrics and qualitative feedback (at least, at first)







YEAR 1

SEMESTER 1	SEMESTER 2	
DEVELOPMENT PRINCIPLES GAM110 Core 20 credits	MULTIDISCIPLINARY DEVELOPMENT PRACTICE GAM130	
PRINCIPLES OF COMPUTING COMP110 Core 20 credits	Core 40 credits	
CREATIVE COMPUTING COMP120 Core 20 credits	INDIVIDUAL CREATIVE COMPUTING PROJECT COMP140 Core 20 credits	



YEAR 2

SEMESTER 1 WORLD CREATION PROJECT: PRE-PRODUCTION GAM220 Core 20 credits		SEMESTER 2	
		WORLD CREATION PROJECT: PRODUCTION GAM240	
MATHS FOR 3D WORLDS & SIMULATIONS COMP270 Core for BSC OR 20 credits	FORM & EXPERIENCE GAM210 Core for BA 20 credits	Core 40 credits	
SPECIALISMS IN CREA COMP: Core 20 crea	280	INDIVIDUAL SPECIALIST COMPUTING PROJECT COMP2* Option 20 credits	

Computing for Games

Graphics & Simulation Interfaces & Interaction Distributed Systems Artificial Intelligence

Game Development: Programming

Interfaces & Interaction Distributed Systems Artificial Intelligence Immersive Computing

XR/VR Project



Web Development

Stage 2

Study block 1	Study Block 2	
WEB210 Web Technologies Compulsory (20 credits)	COMP260 Individual Specialist Computing Project: Distributed Systems Compulsory (20 credits)	
COMP270 Mathematics for 3D Worlds & Simulations Compulsory (20 credits)	WEB220 Web Applications Compulsory (40 credits)	
COMP280 Specialisms in Creative Computing Compulsory (20 credits)		



YEAR 3

SEMESTER 1		SEMESTER 2	
MAJOR GAME PROJECT GAM320 Core for Games 40 credits	MAJOR XR/VR PROJECT VR310 Core for Immersive 40 credits	MAJOR GAME PROJECT GAM330 Core for Games OI 40 credits	MAJOR XR/VR PROJECT VR320 Core for Immersive 40 credits
R&D: PRACTICE COMP230 Core for BSc 20 credits	PROF. PRACTICE GAM340 Core for BA 20 credits	R&D: DISSERTATION COMP360 Core for BSc 20 credits	PREPARING FOR THE FUTURE GAM310 Core for BA 20 credits



Web Development

Stage 3

Study block 1	Study Block 2
WEB310	COMP360
Cloud Computing	Research & Development: Dissertation
Compulsory	Compulsory
(20 credits)	(20 credits)
COMP320	WEB320
Research & Development: Practice	Major Web Project
Compulsory	Compulsory
(20 credits)	(40 credits)
COMP370	
Digital Innovation	
Compulsory	
(20 credits)	





Study Block One

Modules

You have three modules to complete in study block one. These are:

- COMP110 Principles of Computing
- COMP120 Creative Computing
- ► GAM110 Development Principles

Students on BA(Hons) courses and who have no intention of switching can swap COMP110 Principles of Computing for GAM120 Reading Experiences. You will need to complete a module transfer form - we only recommend making the switch if you do **not** feel comfortable with mathematics.



Modules

There are more detailed module introductions, module welcome talks, module induction talks, and assignment briefs available for you to review on the LearningSpace.

These should be available to you on Monday, if they aren't available already.

We will briefly introduce these modules now, but you will need to watch the videos for further detail.

COMP110 Principles of Computing

Aim: To enable you to apply basic computing and mathematical theory to solve practical problems.

Module Leader: Dr Ed Powley

On this module, you will learn the foundational principles of computing, discrete mathematics, and technical communication (e.g., notation, pseudocode, unified modelling language, etc.). You start the process of learning to use core concepts and methods from computer science to solve practical problems and leverage algorithms in your solutions. You will become acquainted in a practical way with the techniques and methods that help you to work through challenges effectively and efficiently to design, build, and annotate computing solutions with reference to relevant scholarly sources.



COMP120 Creative Computing

Aim: To develop your comfort using code and computational techniques to manipulate digital media.

Module Leader: Dr Michael Scott

On this module, you will learn different ways of engaging with code through a practical exploration of media formats including text, image, and sound. Whilst you work in a variety of pair- and mobprogramming formats, you will play, tinker, experiment with, and extend code that will convert artefacts that already exist into something new as a form of appropriation. In doing so, you will embrace the principal of rapid iteration and work in a creative way. Engaging with creative computing in this way means that you will not only become acquainted with programming at an introductory-level, but you will also exercise your creativity. However, working in such a manner and producing derivative works raises moral and legal questions that you will consider and frame within topics such as plagiarism, intellectual property law, licensing rights, as well as the maker and open-source movements.

GAM110 Development Principles

Aim: To engage with the foundational processes of digital project development in a studio-centred context, as well as the culture it supports.

Module Leader: Terry Green

On this module, you gain an understanding of the basic principles, terminology, roles, and tools used in the development of digital products and services. Supervised studio practice directs your attention towards the different assets and software components that need to be drawn together to make a working digital product and how they are organised throughout the development pipeline. You will immerse yourself in a studio culture in which you apply 'agile' project management methods to facilitate practical development and use version control tools to manage your collaboration. You will also gain a 'first-principles' understanding of how to design with a target market in mind and maintain a strong underlying concept.



GAM120 Reading Experiences

Optional switch for BA(Hons) students

Aim: To introduce you to the formal characteristics of digital experiences, and the theories and concepts that have been developed for their analysis.

Module Leader: Dr Jeff Howard

In exploring ideas about games and the player experience, this module offers a foundational space to begin to think closely and carefully about the formal nature of digital experiences, their markets and the contexts of their production, the pleasures they offer and what it means to play them. The ideas engaged with are intended to inform and broaden your development practice on other modules. You receive foundational lectures and workshops on researching experiences and methods for doing so, as well as on academic research methods and essay writing. Seminars provide the space for debating the ideas and material encountered, lectures provide orientation and a one-on-one tutorial provides individual feedback on your progress.





Timetable



Timetable

The timetable can be found on:

http://mytimetable.falmouth.ac.uk

Check the timetable every day! Sessions can, and often do change. Once you are allocated into groups for your collaborative game development projects, meeting times with tutors will change and extra sessions may appear!

The course isn't just the time you're scheduled to be with a tutor, you are expected to engage in self-directed study.



COVID-19 Adjustments

We have conducted risk assessments and made adjustments to our courses to ensure the safety of our staff and our students. This was done for each member of staff and each module on a case-by-case basis.

We have made the following adjustments:

- COMP110 Principles of Computing will run online
- COMP120 Creative Computing will run in a blended fashion, with sessions running face-to-face and online in parallel
- Tutor meetings on COMP110 and COMP120 will run on online
- Studio access will be prioritised for GAM110 groups



COVID-19 Adjustments

An overview is available at:

https://www.falmouth.ac.uk/experience/ new-students/welcome-letters/#course-updates







Assignment Structure

100% Coursework



Assignment Structure

Assessments are designed to reflect professional practice:

- ► Items for your Portfolio
- Collaborative Projects
- Pitches
- Papers

Relative importance of each will depend on your career trajectory













Live Demo

All assignment briefs will be found on:

learningspace.falmouth.ac.uk

Enjoy freshers week. Read them very carefully next week!

LearningSpace is also where you submit **ALL** final "summative" versions of your assigned coursework tasks!



You will usually submit your work as:

- ▶ a link to your git repository
- ▶ or a single .pdf file
- ▶ or a single .zip archive

Please use the following convention:

module_assignmentNumber_studentID

For example:

comp110_1_2011213

We use anonymous marking where possible.



All assignment deadlines can be found next week on:

myfalmouth.falmouth.ac.uk

Take note of these carefully! A single second late, and your work will be capped at the minimum passing grade.



In the absence of extenuating circumstances (i.e., you are seriously ill and stuck in hospital):

You MUST submit something for EVERY assigned coursework task!

In the eyes of university policy, not submitting anything is usually unrecoverable. Even if your work is unfinished, please submit something! Even submitting a blank piece of paper is better than not submitting anything!

If you forget to submit, there is a grace period of 5 working days after the deadline. If you fail, you get a second attempt. And, usually, a third attempt.







Exercise

Go to:

https://padlet.com/michaelscott5/xjdz7hngsnvyx35z

Let's discuss what 'expectations' means, with particular focus on how they differ between higher and compulsory education.

- List key differences between expectations in the higher education and compulsory education contexts;
- Suggest what will be expected of you during your time on the course;
- ▶ Give examples of activities that count as `self-directed study'.



Expectations

Please note the following:

- ► This is a full-time course
- You are expected to do 1200 hours of study per academic year
- ► Approximately 1/3 of that will be contact time
- ► Approximately 2/3 of that will be `self-directed study'
- This means you are expected to study 40 hours per week, EACH week across the two 15-week study blocks
- If you can't commit to this—you will likely struggle with the pace of the course and the group work



Expectation

Typically, study blocks have the following structure:

- 5 Weeks Sessions with Tutors
- 1 Week Assessments and Self-Directed Studio Practice with Team
 - ▶ NOT a vacation
- 5 Weeks Further Sessions with Tutors
- 1 Week Assessments and Self-Directed Studio Practice with Team
- Vacation Period
- ▶ 1 Week Assessments and Self-Directed Studio Practice with Team
- 2 Weeks Workshops Festival
 - ▶ NOT a vacation





Questions & Answers

Thank you for listening.

Please feel welcome to ask questions or raise concerns.





Breakout Groups



Breaking Out

Your programming tutor will have setup a Microsoft Teams 'chat' with you so that you can engage with them. Please introduce yourself to them and introduce yourself to the other members of your tutor group. You will be meeting with them regularly throughout the COMP120 module. We have a few icebreaking activities for you to choose from and a few recommended activities

- SpaceTeam icebreaker
- Games Meta-game icebreaker
- ▶ Time management advice
- ▶ DolT Profiler



Icebreaker: SpaceTeam

A cooperative shouting game for piloting a spaceship! Setup:

- ► Download https://spaceteam.ca/
- If you don't have an Apple or Android mobile phone, use an emulator (e.g., BlueStacks)
- Share the room code to play together online!

Icebreaker: Games Meta-Game

Setup:

- Organise into your tutor groups of 4-6 players
- You will each receive two sets of card: game cards and question cards.
- While you are waiting for your cards, identify the youngest player. They will be the first critic.
- All actions are clockwise from the critic.



Icebreaker: Games Meta-Game

Instructions:

- 1. **Question**: The critic draws a question card.
- 2. **Answer**: The *remaining players* (i.e., not the critic!) submit their best game card, to answer the question, face-up.
- 3. **Justification**: The *remaining players* justify the game card they have selected.
- 4. **Selection**: The critic selects the most suitable game card answering the question. That player 'wins' the round, keeping the question card as a scoring token and becomes the next critic.
- 5. **Repeat** from step 1, for approximately 20 minutes.

Activity: Time Management

Please complete the following activity:

```
http://www.learnhigher.ac.uk/
learning-at-university/time-management/
getting-organised/
```



Activity: DolT Profiler

You **MUST** complete the following activity:

https://doitprofiler.net/Account/ClientLogin

Client code: fal15mar