

# Programme Specification

## Postgraduate Programmes

<b>Awarding Body/Institution</b>	University of London
<b>Teaching Institution</b>	Goldsmiths, University of London
<b>Name of Final Award and Programme Title</b>	MSc Computer Games Programming
<b>Name of Interim Award(s)</b>	PGCert Computer Games Programming PGDip Computer Games Programming
<b>Duration of Study/Period of Registration</b>	1 year FT or 2 years PT
<b>UCAS Code(s)</b>	N/A
<b>HECos Code(s)</b>	(101020) Computer Games Programming
<b>QAA Benchmark Group</b>	Computing
<b>FHEQ Level of Award</b>	Level 7
<b>Programme Accredited by</b>	Creative Skillset
<b>Date Programme Specification last updated/approved</b>	July 2017
<b>Primary Department/Institute</b>	Computing

<b>Departments which will also be involved in teaching part of the programme</b>
Not Applicable

### Programme overview

This MSc is a core part of our unique portfolio of post-graduate programmes in the areas of Games and the Creative (Computer Games, TV, Film, Design, Virtual Reality) industries.

This programme supports the most urgent needs of industry in multicore and procedural programming and serves to reinforce its reputation in the UK and abroad. Students on this programme, who learn technical skills to meet the needs of the games and creative industries, will work alongside students learning to be artists, musicians, writers, choreographers, creators, interested in collaborating with these areas (games ) or in learning and using these new technologies in their own practice.

### Programme entry requirements

This Masters course is aimed at graduates with an interest in working and intervening in computing in the Games and related industries (e.g. TV, Film, Design, Advertising and VR/AR/MR). Some candidates may come via the traditional academic route, while others will have experience of working within the Games field in some way prior to undertaking the course. Candidates will normally have an undergraduate degree in the computing, engineering or mathematical sciences. In all cases, applicants will be expected to be interested in and capable of working in interdisciplinary contexts. An upper second class honours degree or its equivalent in a relevant discipline is normally required. In exceptional circumstances, outstanding practitioners, or individuals with strong commercial experience may arrive at the course via other routes. Non-native speakers of English will normally have to satisfy the University of London requirements of IELTS (6.5), and may be encouraged to use the resources of the English Language Centre.

Candidates will be required to demonstrate sufficient proficiency at programming in an industrially-relevant language, such as C, C++, C#, Python, Lua, or Java, prior to being accepted and enrolled on the MSc programme. This may take the form of a test, or during an interview, of a practical challenge to

program a well-known method or algorithm. Students will be asked to attend for interview where appropriate. Students will be expected to present a small portfolio of work including programming samples, demos and graphics.

### Aims of the programme

This Masters programme is aimed at graduates with an interest in working and intervening in computing in the Games Programming industry. The curriculum prepares students to be ready to work in the games and related industries as soon as they graduate. The possibility of doing an industry internship as part of this programme, counting towards the Final project, augments the readiness and success of our graduates. The MSc aims to keep track of important developments of relevance to these industries, such as advances made in hardware, graphics software, software engineering, parallel and GPU programming, and the increasing impact of Artificial Intelligence and Machine Learning.

The programme also encourages students to share activities and projects with students on other programmes, including the MA in Games: Art and Design, and the MA and MSc in Virtual and Augmented Reality., mimicking practice in these industries. This is facilitated by a invitations to industry speakers and visitors to deliver seminars, workshops and participation in other programme activities.

### What you will be expected to achieve

Learning outcomes for the PGCert, PGDip and MSc:

Knowledge and Understanding		Taught by the following modules
<b>A1</b>	Show knowledge and ability with the main concepts and methodologies of the games and interactive entertainment.	All taught modules
<b>A2</b>	Understand the collaborative and team management aspects of projects that operate in the context of games and interactive entertainment.	All taught modules
<b>A3</b>	Object Oriented programming (typically, in C++, C# or Java) and scripting (e.g., Python or Lua).	Introduction to Programming for Games and Interactive Graphics; Advanced Programming for Games and Interactive Graphics
<b>A4</b>	Apply the taught advanced programming and core concepts in graphics, perception (e.g., graphics, audio, touch), and A.I.	Introduction to Programming for Games and Interactive Graphics; Advanced Programming for Games and Interactive Graphics; Mathematics and Graphics for Computer Games 1; Maths and Graphics for Computer Games 2

Cognitive and Thinking Skills		Taught by the following modules
<b>B1</b>	Be able to efficiently design a software or a system to fulfill a given high-level task (e.g., for an interactive computer vision game application)	Introduction to Programming for Games and Interactive Graphics; Advanced Programming for Games and Interactive Graphics
<b>B2</b>	Be able to come up with original and innovative ideas that fit the context, both creative and technical.	All taught modules
<b>B3</b>	Be conversant with the Games industry, with terminology and current state of the industry in	

	multiple format areas and articulate views and opinions.	All taught modules
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<b>Subject Specific Skills and Professional Behaviours and Attitudes</b>		<b>Taught by the following modules</b>
<b>C1</b>	Be able to devise projects and other forms of research that actively work with and test the main concepts and methodologies of the Games sector.	All taught modules
<b>C2</b>	Be comfortable and familiar with team work under tight scheduling.	All taught modules
<b>C3</b>	Explore and use a range of technologies, middlewares and languages (both compiled and scripted)	Introduction to Programming for Games and Interactive Graphics; Advanced Programming for Games and Interactive Graphics
<b>C4</b>	Be familiar with the main software project management techniques, e.g., waterfall, agile, xp, x-discipline, and critically evaluate those approaches.	Business and Practice
<b>C5</b>	Be able to able to work in a team in a commercial product development environment and engage in production issues and where appropriate management issues, to be an effective team member.	Business and Practice
<b>C6</b>	Experience in evaluating a particular research question of relevance to computer games or entertainment graphic systems. (MSc only)	Final Project
<b>C7</b>	Independent development of a piece of software in support of the explored research question. (MSc only)	Final Project

<b>Transferable Skills</b>		<b>Taught by the following modules</b>
<b>D1</b>	Develop the ability to work in a multidisciplinary context (games software/production, maths, business/IP, presentation/marketing, art/design, cultural/social impacts) and to transfer information and collaborative materials from one kind of work to another.	All taught modules
<b>D2</b>	To be able to develop learning strategies for the ongoing acquisition of skills and knowledge.	All taught modules
<b>D3</b>	To be able to communicate ideas, plans and projects to different kinds of collaborators	All taught modules
<b>D4</b>	To design, take part in and lead team-based projects, as well as be able to plan and undertake independent projects.	All taught modules

<b>D5</b>	To be able to produce extended written work of a high academic standard.	All taught modules
<b>D6</b>	To be able to orally present (e.g., in seminars) state-of-the-art research in the studied fields (e.g., in computer graphics).	All taught modules
<b>D7</b>	Appropriately plan and design, present and evaluate, a research project in computer games (MSc only)	Final Project
<b>D8</b>	Experience in writing an extended report in support of a research project. (MSc only)	Final Project

## How you will learn

The MSc consists of compulsory modules (5 main 15 CATS modules, and 3x 15 CATS amongst a choice from “options” [availability subject to change]) and a Final project (60 CATS). Students are required to accumulate 180 CAT points (credits) to graduate - the equivalent of 8 x 15 credits and a Final project valued as 60 credits.

NB: Taught options may not all be available each year; but at least one option each semester will be available to allow students to fulfil their degree requirements. A range of teaching methods is employed to support the learning outcomes detailed above. Students take modules organised around the recognised protocols of lectures, labs and seminars, as well as individual tutorials to discuss work and general progress, workshops, project work and student presentations. Throughout the programme students are involved in the development of projects via the use of the lab facilities.

Students are encouraged to study independently and to make full use of the extensive libraries available to all University of London students. Students are strongly encouraged to attend the full range of seminars taking place throughout the University of London and beyond. Events of particular interest to this cohort are publicised through the notice board in the department and via an e-mail list.

## How you will be assessed

**Exams/Courseworks (including projects)** Exams and courseworks test the student's understanding of concepts and examples presented in class. Includes programming challenges. Projects for a given module represent a more ambitious challenge, with room for novelty or the test/implementation of state-of-the-art topics seen in class. Typically, a project may stand as the final coursework or exam of a given module.

### Essays

Assessed essays test the ability of the student to sustain a coherent and original argument on the basis of their reading and research throughout the duration of the module. Students are expected to discuss the content of their report with their module convenor.

### Dissertation (Final project)

The written and programming component of the dissertation develops and assesses the capacity of students to work independently, to define a research and development problem and design the research and presentation and, where applicable, to collect suitable and reliable data. The dissertation promotes and tests the ability to construct a clear argument on a complex and extensively treated topic.

## Marking criteria

Mark	Descriptor	Specific Marking Criteria
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80-100%	Distinction (Outstanding/Exceptional)	A mark in the 80s or even the 90s will be awarded in the case of really accomplished work, demonstrating high levels of scholarship and originality.
70-79%	Distinction	Awarded when candidates show evidence of an excellent application of appropriate knowledge, understanding and skills as specified in the module learning outcomes. Demonstration of a thorough grasp of relevant concepts, methodology and content appropriate to the subject discipline; indication of originality in application of ideas, in synthesis of material or in performance; insight reflects depth and confidence of understanding of the material. The 90s will be awarded in the case of really accomplished work, demonstrating high levels of scholarship and originality.
60-69%	Merit	Awarded when candidates show a good application of appropriate knowledge, understanding and skills as specified in the module learning outcomes. Demonstration of a sound level of understanding based on a competent grasp of relevant concepts, methodology and content; display of skill in interpreting complex material; organisation of material at a high level of competence
50-59%	Pass	Awarded when there is clear evidence of a satisfactory application appropriate, knowledge, understanding and skills as specified in the module learning outcomes. Demonstration of an adequate level of understanding of relevant concepts, methodology and content; display of sufficient skill to tackle some complex problems; appropriate organisation of material.
30-49%	Fail	Awarded when there is not a satisfactory application of appropriate knowledge, understanding and skills as specified in the module learning outcomes. There may be confusion and incoherence and unfocused comment on the state-of-the-art. Documentation or realization of projects or coursework would characteristically be weak and fragmentary.
10-29%	Bad fail	Awarded when only some but not all of the learning outcomes specified for the module have been achieved. Typically a candidate in this position will not have satisfied the examiners that they have read and understood the essential texts of the module. Research involved in the writing of coursework, the realization of projects or the dissertation will be poorly organised and inadequately discussed.
1-9%	Very bad fail	A submission that does not even attempt to address the specified learning outcomes (shall be deemed a non-valid attempt and unit must be re-sat).
0%	Non submission or plagiarised	A categorical mark representing either the failure to submit an assessment or a mark assigned for a plagiarised assessment

## How the programme is structured

Part time candidates will be expected to pass all of their first year curriculum elements before progressing onto the second year. Full-time and second year part-time candidates will be required to have passed all taught course elements before proceeding to their Final Project with dissertation.

After the successful completion of all taught units, the students will have the possibility to obtain an interim award (PGDip) if they decide not to pursue and complete the Final Project.

#### Academic Year of Study

Module Title	Module Code	Credits	Level	Module Status	Term
Introduction to Programming for Games and Interactive Graphics	IS71030A	15	7	Compulsory	1
Mathematics and Graphics for Computer Games 1	IS71021B	15	7	Compulsory	1
Advanced Programming for Games and Interactive Graphics	IS71026B	15	7	Compulsory	2
Business & Practice	IS71025A	15	7	Compulsory	
Mathematics and Graphics for Computer Games 2	IS71022A	15	7	Compulsory	2
Option modules to the value of 45 CATS (from a list annually approved by the Department)		45	7	Optional	1,2
Final Project	IS74019A	60	7	Core	3

#### Academic support

Support for learning and wellbeing is provided in number of ways by departments and College support services who work collaboratively to ensure students get the right help to reach their best potential both academically and personally.

Students are allocated a personal tutor and a Senior Tutor in each department who has overall responsibility progress and welfare. Departments arrange regular communication to students in the form of mailings and meetings as well as regular progress reports and feedback on coursework and assignments. This is in addition to scheduled seminars, tutorials and lectures/workshops.

Every student is assigned a personal tutor who will meet with their student twice a year either face-to-face, as part of a group and/or electronically, the first of which normally takes place within the first few weeks of the first term. Personal tutors are also available to students throughout the year of study. These meetings aim to discuss progress on modules, discussion of the academic discipline and reports from previous years if available (for continuing students). This way progress, attendance, essay/coursework/assessment marks can be reviewed, and an informed discussion can be about how to strengthen learning and success.

Students are sent information about learning resources in the Library and on the VLE so that they have access to programme handbooks, programme information and support related information and guidance. Timetables are sent in advance of the start of term so that students can begin to manage their preparation and planning.

Taught sessions and lectures provide overviews of coursework themes, which students are encouraged to complement with intensive reading for presentation and discussion with peers at seminars. Coursework essays build on lectures and seminars, so students are encouraged to attend all taught sessions to build knowledge and their own understanding of their chosen discipline.

In depth feedback is provided for written assignments and essays via written feedback forms and formative feedback with module tutors/leads is provided to ensure that students' work is on the right track. Feedback comes in many forms and not only as a result of written comments on a marked essay. Students are given feedback on developing projects and practice as they attend workshops and placements.

Students may be referred to specialist student services by department staff or they may access support services independently. Information about support services is clearly provided on the College Website and for new students through new starter information and induction/Welcome Week. Any support recommendations that are made are agreed with the student and communicated to the department so that adjustments to learning and teaching are able to be implemented at a department level and students can be reassured that arrangements are in place. Opportunities are provided for students to review their support arrangements should their circumstances change. The Inclusion and Learning Support and Wellbeing Teams maintain case loads of students and provide on-going support.

The Careers Service provides central support for skills enhancement, running the Gold Award Scheme and other co-curricular activities that are accredited via the higher education achievement report (HEAR).

The Academic Skills Centre works with academic departments offering bespoke academic literacy sessions. It also provides a programme of academic skills workshops and one-to-one provision throughout the year, which students can access directly at [gold.ac.uk/asc/](http://gold.ac.uk/asc/).

### **Links with employers, placement opportunities and career prospects**

Graduates of the "MSc Computer Games Programming" are expected to be people who rapidly find work in the Games industry sector, be original thinkers, "hands on" and will often be managers or directors as they progress in their careers. During their course there will be opportunity to meet computer games and recruitment companies through networking events and external lectures

### **The requirements of a Goldsmiths degree**

#### **Master's Degrees**

All Master's degrees at Goldsmiths have a minimum value of 180 credits. Programmes are comprised of modules which have individual credit values. In order to be eligible for the award of a Master's degree students must have passed all modules on the programme.

#### **Intermediate Exit Points**

Some programmes incorporate intermediate exit points of Postgraduate Certificate and Postgraduate Diploma, which may be awarded on the successful completion of modules to the value of 60 credits or 120 credits respectively. Individual programmes may specify which, if any, combination of modules are required in order to be eligible for the award of these qualifications. The awards are made without classification.

#### **Final Classification**

There are four possible categories of final classification for Master's degrees: Distinction, Merit, Pass and Fail.

For further information, please refer to the Regulations for Postgraduate Taught Students, which may be found here: <http://www.gold.ac.uk/governance/studentregulations/>

## **Programme-specific rules and facts**

### **Programme costs**

#### **General Costs**

In addition to your tuition fees, you will be responsible for meeting standard costs associated with your study. Find out more information here: <https://www.gold.ac.uk/programme-costs>

#### **How teaching quality will be monitored**

Students will provide feedback on module content and lecturer attributes (e.g., pace of lecturer's delivery) in the form of Module Evaluations that students will complete at the end of each taught module. Second, a formal Staff/Student Forum reviews quality within Goldsmiths College: staff and student representatives meet to raise issues of quality (students may contribute directly to this procedure by serving as a student representative, for which Student Union training is provided). The Chair, who is a member of staff, produces an annual report which is sent to Quality Affairs; this report, and the Minutes of the meetings, are also sent to Department Board (on which there is a postgraduate representative). Third, the External Examiners' reports contain a digest of strengths and weaknesses of this Programme and, where suggestions for further improvements are made, these are quickly acted upon. Fourth, Subject Review monitors the general quality of teaching and learning provision in the College. Fifth, regular team meetings are designed proactively to monitor and consider modifications to programmes. Sixth, all members of staff engage in ongoing reflective practice based on awareness of pedagogical issues; this process is facilitated by College-level seminars aimed at raising awareness of such issues.