COURSE OUTLINE

SGD213 Professional Games Programming

Course Coordinator: Justin Carter (jcarter3@usc.edu.au) **School:** School of Business and Creative Industries

2021 | Semester 1

USC Sunshine Coast	ON CAMPUS	Most of your course is on campus but you may be able to do some components of this course online.
Online	ONLINE 1	You can do this course without coming onto campus.

Please go to the USC website for up to date information on the teaching sessions and campuses where this course is usually offered.

1. What is this course about?

1.1. Description

This course extends the fundamental concepts of games programming knowledge and skills acquired in SGD102. This course focusses explicitly on concepts of object-oriented programming within a professional game development context. The course develops a comprehensive understanding of games programming design principles and how to apply them in professional game development systems. You will engage with and use technical terminology, theoretical concepts, and academic approaches to game programming, acquiring the skills and knowledge needed to design and develop games programming solutions.

1.2. How will this course be delivered?

ACTIVITY	HOURS	BEGINNING WEEK	FREQUENCY
ON CAMPUS			
Lecture – 1 hour online lecture content for 12 weeks (or equivalent).	1hr	Week 1	12 times
Laboratory – On campus laboratory for 12 weeks (or equivalent).	2hrs	Week 2	12 times
ONLINE 1			
Online – 3 hours online content for 12 weeks (or equivalent).	3hrs	Week 1	12 times

1.3. Course Topics

Programming in game development teams

Object-oriented programming concepts

The four principles of object-oriented programming (encapsulation, abstraction, inheritance, and polymorphism)

Object-oriented programming in a realtime game engine

Publishing games for multiple platforms

2. What level is this course?

200 Level (Developing)

Building on and expanding the scope of introductory knowledge and skills, developing breadth or depth and applying knowledge and skills in a new context. May require pre-requisites where discipline specific introductory knowledge or skills is necessary. Normally, undertaken in the second or third full-time year of an undergraduate programs.

3. What is the unit value of this course?

12 units

4. How does this course contribute to my learning?

COURSE LEARNING OUTCOMES On successful completion of this course, you should be able to...		GRADUATE QUALITIES Completing these tasks successfully will contribute to you becoming...
1	Analyse, evaluate, and develop programs in the C# language.	Creative and critical thinker Empowered
2	Work in a structured and modular manner, consistent with the needs of a team development environment.	Engaged
3	Communicate programming concepts with simplicity and precision when collaborating with non-programmers, both verbally and in the form of a technical specification.	Empowered Engaged
4	Create code to specification in developing and applying games programming solutions.	Creative and critical thinker Empowered

5. Am I eligible to enrol in this course?

Refer to the USC Glossary of terms for definitions of “pre-requisites, co-requisites and anti-requisites”.

5.1. Pre-requisites

SGD102 or ICT112 or SGD203

5.2. Co-requisites

Not applicable

5.3. Anti-requisites

Not applicable

5.4. Specific assumed prior knowledge and skills (where applicable)

Not applicable

6. How am I going to be assessed?

6.1. Grading Scale

Standard Grading (GRD)

High Distinction (HD), Distinction (DN), Credit (CR), Pass (PS), Fail (FL).

6.2. Details of early feedback on progress

The course material is structured in a way that students are progressively working towards their assessment pieces. These progressive works are based on weekly learning material which is delivered in a way that is initially demonstrated, then applied. During application, the teacher will provide support and feedback for the student's growth in each subject matter.

6.3. Assessment tasks

DELIVERY MODE	TASK NO.	ASSESSMENT PRODUCT	INDIVIDUAL OR GROUP	WEIGHTING %	WHAT IS THE DURATION / LENGTH?	WHEN SHOULD I SUBMIT?	WHERE SHOULD I SUBMIT IT?
All	1	Artefact - Technical and Scientific	Individual	30%	N/A	Throughout teaching period (refer to Format)	Online Assignment Submission
All	2	Artefact - Creative, and Written Piece	Group	30%	1500 words & architecture diagrams	Week 7	Online Assignment Submission
All	3	Artefact - Technical and Scientific, and Written Piece	Individual	40%	500 words & code artefacts	Week 13	Online Assignment Submission

All - Assessment Task 1: Code clean-up

GOAL:	When working in a structured team environment, you will inevitably work on programs written by other programmers, and they will work on yours. Poorly written code results in inefficiency and confusion. In this task, you will evaluate and debug flawed code, follow a specified style, and provide useful comments where necessary.
PRODUCT:	Artefact - Technical and Scientific
FORMAT:	Each piece of debugged code must be submitted separately to blackboard, by the end of weeks 4, 6, 8, 10 and 12, respectively. Each sub-task is weighted evenly, and worth 6% of the total weighting for the course. This is an individual task.
CRITERIA:	

No.		Learning Outcome assessed
1	Adherence to the provided coding standards.	
2	Functioning of code.	
3	Clarity of commenting.	
4	Efficiency of code.	
5	Assessment criteria are mapped to the course learning outcomes.	1 2 3 4

All - Assessment Task 2: Developing a tech spec

GOAL:	Miscommunication within a team, especially between programmers and non-programmers, often leads to inefficiency, confusion, and programs which do not perform as expected. In this task, you will develop a client specification document, which simply and precisely translates "client-speak" into "programmer-speak". You must not only distil the client's expectations, you must also describe the technical requirements of the project, adding structure to the process (architecture) and reducing the likelihood of miscommunication.
PRODUCT:	Artefact - Creative, and Written Piece
FORMAT:	The specification document should be as descriptive as necessary, but as concise as possible, 3-4 pages, including relevant architecture diagrams (in any consistent format of your choice, such as UML). Examples will be provided in class. This is a group assessed task.

CRITERIA:	No.	Learning Outcome assessed
	1	Analysis of available Architectural Options.
	2	Detailed communication of chosen Architecture.
	3	Identification of Constraints and Risks.
	4	Contact Management.
	5	Correct Identification of Client Requirements.

All - Assessment Task 3: Implementing a tech spec

GOAL:	Developing a client requirements specification clarifies the expectations of the client as well as the technical requirements of the project. In this task, now implement a portion of C# code accordingly, within the Unity 3D Game Engine.
PRODUCT:	Artefact - Technical and Scientific, and Written Piece
FORMAT:	This is a group task with individual assessment. You will work with the rest of your group from Assessment Task 2 to ensure that your sections of code interact with the rest of the project as expected. Submit the project as a group, and each individual will also be required to submit their own self-assessment.

CRITERIA:	No.	Learning Outcome assessed
	1	Ability to implement functional requirements.
	2	Adherence to the provided coding standards.
	3	Code readability.
	4	Utilisation of design patterns.
	5	Critical self-evaluation and contribution to team work.

7. Directed study hours

A 12-unit course will have total of 150 learning hours which will include directed study hours (including online if required), self-directed learning and completion of assessable tasks. Directed study hours may vary by location. Student workload is calculated at 12.5 learning hours per one unit.

8. What resources do I need to undertake this course?

Please note: Course information, including specific information of recommended readings, learning activities, resources, weekly readings, etc. are available on the course Blackboard site– Please log in as soon as possible.

8.1. Prescribed text(s) or course reader

> There are no required/recommended resources for this course.

8.2. Specific requirements

This course requires some commercial software or hardware which is provided at USC campuses for student use. If you elect to do this course online, you may either; attend a campus at which it is available, discuss alternative open source solutions with your course coordinator that would enable you to demonstrate the learning outcomes, or if you prefer you may acquire this software and / or hardware at your own expense

9. How are risks managed in this course?

Health and safety risks for this course have been assessed as low. It is your responsibility to review course material, search online, discuss with lecturers and peers and understand the health and safety risks associated with your specific course of study and to familiarise yourself with the University's general health and safety principles by reviewing the online induction training for students, and following the instructions of the University staff.

10. What administrative information is relevant to this course?

10.1. Assessment: Academic Integrity

Academic integrity is the ethical standard of university participation. It ensures that students graduate as a result of proving they are competent in their discipline. This is integral in maintaining the value of academic qualifications. Each industry has expectations and standards of the skills and knowledge within that discipline and these are reflected in assessment.

Academic integrity means that you do not engage in any activity that is considered to be academic fraud; including plagiarism, collusion or outsourcing any part of any assessment item to any other person. You are expected to be honest and ethical by completing all work yourself and indicating in your work which ideas and information were developed by you and which were taken from others. You cannot provide your assessment work to others. You are also expected to provide evidence of wide and critical reading, usually by using appropriate academic references.

In order to minimise incidents of academic fraud, this course may require that some of its assessment tasks, when submitted to Blackboard, are electronically checked through SafeAssign. This software allows for text comparisons to be made between your submitted assessment item and all other work that SafeAssign has access to.

10.2. Assessment: Additional Requirements

Your eligibility for supplementary assessment in a course is dependent of the following conditions applying:

The final mark is in the percentage range 47% to 49.4%
The course is graded using the Standard Grading scale
You have not failed an assessment task in the course due to academic misconduct.

10.3. Assessment: Submission penalties

Late submission of assessment tasks may be penalised at the following maximum rate:
- 5% (of the assessment task's identified value) per day for the first two days from the date identified as the due date for the assessment task.
- 10% (of the assessment task's identified value) for the third day - 20% (of the assessment task's identified value) for the fourth day and subsequent days up to and including seven days from the date identified as the due date for the assessment task.
- A result of zero is awarded for an assessment task submitted after seven days from the date identified as the due date for the assessment task. Weekdays and weekends are included in the calculation of days late. To request an extension you must contact your course coordinator to negotiate an outcome.

10.4. Study help

For help with course-specific advice, for example what information to include in your assessment, you should first contact your tutor, then your course coordinator, if needed.

If you require additional assistance, the Learning Advisers are trained professionals who are ready to help you develop a wide range of academic skills. Visit the Learning Advisers web page for more information, or contact Student Central for further assistance: +61 7 5430 2890 or studentcentral@usc.edu.au.

10.5. Wellbeing Services

Student Wellbeing provide free and confidential counselling on a wide range of personal, academic, social and psychological matters, to foster positive mental health and wellbeing for your academic success.

To book a confidential appointment go to Student Hub, email studentwellbeing@usc.edu.au or call 07 5430 1226.

10.6. AccessAbility Services

Ability Advisers ensure equal access to all aspects of university life. If your studies are affected by a disability, learning disorder mental health issue, , injury or illness, or you are a primary carer for someone with a disability or who is considered frail and aged, AccessAbility Services can provide access to appropriate reasonable adjustments and practical advice about the support and facilities available to you throughout the University.

To book a confidential appointment go to Student Hub, email AccessAbility@usc.edu.au or call 07 5430 2890.

10.7. Links to relevant University policy and procedures

For more information on Academic Learning & Teaching categories including:

- Assessment: Courses and Coursework Programs
- Review of Assessment and Final Grades
- Supplementary Assessment
- Administration of Central Examinations
- Deferred Examinations
- Student Academic Misconduct
- Students with a Disability

Visit the USC website: http://www.usc.edu.au/explore/policies-and-procedures#academic-learning-and-teaching

10.8. General Enquiries

In person:

- **USC Sunshine Coast** - Student Central, Ground Floor, Building C, 90 Sippy Downs Drive, Sippy Downs
- **USC Moreton Bay** - Service Centre, Ground Floor, Foundation Building, Gympie Road, Petrie
- **USC SouthBank** - Student Central, Building A4 (SW1), 52 Merivale Street, South Brisbane
- **USC Gympie** - Student Central, 71 Cartwright Road, Gympie
- **USC Fraser Coast** - Student Central, Student Central, Building A, 161 Old Maryborough Rd, Hervey Bay
- **USC Caboolture** - Student Central, Level 1 Building J, Cnr Manley and Tallon Street, Caboolture

Tel: +61 7 5430 2890

Email: studentcentral@usc.edu.au