
SCSSE

**School of Computer Science and Software Engineering
Faculty of Informatics**

CSCI356 Game Engine Fundamentals Subject Outline Spring Session 2009

Head of School –Professor Willy Susilo, Student Resource Centre, Tel: (02) 4221 3606

GENERAL INFORMATION

Subject Coordinator

Telephone Number:

Email:

Location:

Dr Casey Chow

02 4221 5001

caseyc@uow.edu.au

3.207

Dr Chow's consultation times during session:

Day

Wednesday

Friday

Time

10:30-12:30

14:30-16:30

Subject Organisation

Session:

Credit Points

Contact hours per week:

Lecture Times & Location:

Spring Session, Wollongong Campus

6 credit points

3 hours lectures, 2 hours Computer lab

Lecture A 10:30-12:30 Thurs, 3.121

Lecture B 13:30-14:30 Fri, 3.121

Tutorial Day, Time and Location can be found at: <http://www.uow.edu.au/student/timetables/index.html>

Students should check the subject's web site regularly as important information, including details of unavoidable changes in assessment requirements will be posted from time to time via e-Learning space <http://www.uow.edu.au/student/>. Any information posted to the web site is deemed to have been notified to all students.

Subject Description

The subject will employ an appropriate game engine to illustrate the use of an application programming interface (API) in the design and development of physics and artificial intelligence models for computer games. The subject will cover topics including, dynamics of particles, collision, rigid body dynamics and collision, gravity and projectiles, spring systems, water and waves. "Artificial intelligence" topics include finite state machines, fuzzy state machines, etc. The subject also covers the development of terrain, sound, etc, for games.

Subject Objectives

On successful completion of this subject, students should be able to:

1. Develop and implement appropriate physics models to simulate simple dynamical systems for games.
 2. Develop and implement appropriate artificial intelligence models to simulate simple dynamical systems for games.
 3. Identify and describe the components of the architecture of a game engine
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This subject outline can be found at: <http://www.uow.edu.au/informatics/scsse/current>

4. Use the API provided by a game engine to implement physics and artificial intelligence models for games
5. Use the API provided by a game engine to implement sound, terrain, etc for games
6. Describe physics and artificial intelligence models used in game design

Graduate Qualities

This subject will continue to the following graduate qualities:

Informed
Problem Solvers

Further information can be found at:

<http://www.uow.edu.au/informatics/scsse/current/SubjectInformation/UOW049401.html>

Attendance Requirements:

It is the responsibility of students to attend all lectures/tutorials/labs/seminars/practical work for subjects for which you are enrolled. It should be noted that the amount of time spent on each 6 credit point subject should be at least 12 hours per week, which includes lectures/tutorials/labs etc.

Satisfactory attendance is deemed by the University, to be attendance at approximately 80% of the allocated contact hours.

Attendance rolls will be kept for lectures and laboratories. If you are present for less than 80% and would have otherwise passed you need to apply for student academic consideration, otherwise a TF (technical fail) grade will be recorded.

Students MUST attend their **allocated** tutorial unless they have the written permission of the subject coordinator.

Method of Presentation:

In order to maximize learning outcomes, it is strongly recommended that students attend all lectures.

Lecture Schedule:

A proposed Lecture schedule for the subject is as follows:

Week	Topic	Reading
1-3	Introduction, game graphics	No Lab in Week1
5-6	Dynamics of particles, collision, rigid-body dynamics	Lab Assessment 1 (Week 5)
7-8	Gravity, projectiles, spring systems, water & waves	
9-11	Movement, path-finding, state machines	Lab Assessment 2 (Week 8)
12-13	Networking, audio, revision	Lab Assessment 3 (Week 11) Group Assignment (Week 13)

Changes to the above schedule will be posted via e-Learning space <http://www.uow.edu.au/student/>. Any information posted to the web site is deemed to have been notified to all students.

Subject Materials:

Any readings/references are recommended only and are not intended to be an exhaustive list. Students are encouraged to use the library catalogue and databases to locate additional readings

References:

Conger, "Physics Modeling for Game Programmers", Thomson
Ahlquist & Novak, "Game Development Essentials: Game Artificial Intelligence, Thomson
Millington, "Game Physics Engine Development", Morgan Kaufmann
Millington, "Artificial Intelligence for Games", Morgan Kaufmann

Assessment:

This subject has the following assessment components.

ASSESSMENT ITEMS & FORMAT	% OF FINAL MARK	GROUP/ INDIVIDUAL	DUE DATE
Lab Assessments	3@10% (= 30%)	Individual	Weeks 5, 8, 11
Group Assignment	30%	Group	Week 13
Final Examination	40%	Individual	Exam Week

Notes on Assessment:

All assignments are expected to be completed independently. Plagiarism may result in a FAIL grade being recorded for that assignment.

Electronic Submission of Assessment Items:

Unless otherwise notified by the subject coordinator, all written assignments must be submitted electronically.

Lab assessments will be marked in the respective lab. The group assignment must be submitted on CD/DVD. Refer to the assignment sheets for details.

To be eligible for a Pass in this subject a student must achieve a mark of at least 40% in the final exam. Students who fail to achieve this minimum mark & would have otherwise passed will be given a TF (Technical Fail) for this subject.

Procedures for the return of assessment items:

Marked assignments will be returned in the lab sessions.

Penalties for late submission of assessment items:

Penalties apply to all late work, except if student academic consideration has been granted. Late submissions will attract a penalty of 25% of the assessment mark.

This amount is per day including weekends.

Work more than four (4) days late will be awarded a mark of zero.

Tutorial/Lab Closure Policy

If for any reason, the number of students in a tutorial or lab falls below a sustainable enrolment level, as determined by the Head of School, tutorials/labs offered for that subject may be collapsed or deleted.

You will have to attend the new tutorials/lab if this closure affects the one you are attending.

We will endeavour to make this decision no later than Week 4 of session.

Supplementary Exams

Supplementary Exams will be dealt with in accordance with student academic consideration policy (<http://www.uow.edu.au/about/policy/studentacademicconsiderationpolicy.pdf>) 9.2 Timing of Supplementary Exams.

While the School normally grants supplementary exams when the student does not sit the standard exam for an acceptable reason, each case will be assessed on its own merit and there is no guarantee a supplementary exam will be granted. If a supplementary exam is granted, you will normally be notified via SOLS Mail the time and date of this supplementary exam. You must follow the instructions given in the email message.

Please note that if this is your last session and you are granted a supplementary exam, be aware that your results will not be processed in time to meet the graduation deadline.

Student Academic Consideration Policy

The School recognises that it has a responsibility to ensure equity and consistency across its subjects for all students. Sometimes, in exceptional circumstances, students need to apply for student academic consideration in order to complete all assessable work.

The University applies strict criteria to the granting of student academic consideration. Before applying for student academic consideration, students should carefully read the University's policy which can be found at: <http://www.uow.edu.au/about/policy/studentacademicconsiderationpolicy.pdf>.

Plagiarism

When you submit an assessment task, you are declaring the following

1. It is your own work and you did not collaborate with or copy from others.
2. You have read and understand your responsibilities under the University of Wollongong's policy on plagiarism.
3. You have not plagiarised from published work (including the internet). Where you have used the work from others, you have referenced it in the text and provided a reference list at the end of the assignment.

Students must remember that:

Plagiarism will not be tolerated.

Students are responsible for submitting original work for assessment, without plagiarising or cheating, abiding by the University's policies on Plagiarism as set out in the University Handbook under University Policy Directory and in Faculty handbooks and subject guides. Plagiarism has led to the expulsion from the University.

Student Academic Grievance Policy

The School aims to provide a fair, equitable and productive learning environment for all its students. The Student Academic Grievance Policy seeks to support the achievement of this goal by providing a transparent and consistent process for resolving student academic grievances.

Any student who has a grievance over a result should obtain a Faculty of Informatics Appeal Against Decision or Action Affecting Academic Experience form from the Informatics Student Enquiry Centre. (<http://www.uow.edu.au/content/groups/public/@web/@inf/@faculty/documents/doc/uow017433.pdf>) The student should firstly take the form to the marker/lecturer to discuss the matter and, if the student is still not satisfied, s/he should take the next step as outlined on the form.

Once the grievance has been considered by the Faculty, if the student still feels the situation has not been fully resolved s/he may consult the Dean of Students. However, the Dean of Students can have no input into the academic judgment of the lecturer and can only review the grievance to ensure proper procedure has been followed.

Relevant University Policies, procedures and students services:

For more information students must refer to the Faculty handbook, online references or consult the UOW policy in full at <http://www.uow.edu.au/handbook/courserules/studacgrievpol.html> which contains a range of policies on educational issues and student matters.

This subject outline can be found at: <http://www.uow.edu.au/informatics/scsse/current>

This outline should be read in conjunction with the following documents:

Code of Practice - Teaching and Assessment http://www.uow.edu.au/handbook/codesofprac/teaching_code.pdf	Code of Practice - Students http://www.uow.edu.au/handbook/codesofprac/cop_students.html
Code of Practice-Honours http://www.uow.edu.au/handbook/CodeofPractice-Honours.pdf	Acknowledgement Practice Plagiarism will not be tolerated: http://www.uow.edu.au/handbook/courserules/plagiarism.html
Key Dates http://www.uow.edu.au/student/dates.html	Student Academic Consideration Policy: http://www.uow.edu.au/about/policy/studentacademicconsiderationpolicy.pdf
Course Progress Requirements: http://www.uow.edu.au/student/mrp/index.html	Graduate Qualities Policy: http://www.uow.edu.au/about/teaching/qualities/index.html#_The new UOW
Academic Grievance Policy (Coursework and honours students) http://www.uow.edu.au/handbook/courserules/studacgrievpol.html	Non-Discriminatory Language Practice and Presentation http://staff.uow.edu.au/eed/nondiscrimlanguage.html
Occupational Health and Safety http://staff.uow.edu.au/ohs/commitment/ohspolicy/index.html	Ownership of Work & Intellectual Property Policy: http://www.uow.edu.au/handbook/generalcourserules/UOW028651.html
Human Research Ethics Committee: http://www.uow.edu.au/research/rso/ethics/human/	Rules for student conduct: http://www.uow.edu.au/handbook/generalrules/StudentConductRules.pdf
Independent Learners' Introductory Program http://www.uow.edu.au/student/attributes/ilip/	Informatics Faculty Librarian, Ms Annette Meldrum, phone: 4221 4637, email: ameldrum@uow.edu.au
Student Support Services: http://www.uow.edu.au/student/services/ Informatics Faculty SEDLO (Student Equity and Diversity Liaison Officers) Virginie Schmelitschek, phone 4221 3833, virginie@uow.edu.au	SCSSE Internet Access & Student Resource Centre http://www.uow.edu.au/informatics/common/uow024466.html
SCSSE Computer Usage Rules http://www.uow.edu.au/informatics/common/uow024457.html	SCSSE Subject Outlines http://www.uow.edu.au/informatics/scsse/current