IAT 410: Advanced Game Design
Fall 2007
School of Interactive Arts and Technology
Simon Fraser University, Surrey

Tuesday 4:00-4:50 (lecture) 5280

T 5:30-7:20 (3300), 6:30-8:20 (3050),
W 12:30-2:20 (3300),
R 5:30-7:20 (3300) (labs)
Webpage: http://www.sfu.ca/~magy/courses/IAT410-Fall07/index.html

Instructors:
Assistant Prof. Magy Seif El-Nasr
Office: 14-655
Phone: 778-782-8180
Email: magy@sfu.ca
Office hours: Tuesdays 3-4 or by appointment

Eric Yingchen Yang
Office: 14-775
Email: yyang1@sfu.ca
Office hours: TBD

Teaching Assistant:
Ai Nakatan
Office: 3rd floor
Email: anakatan@sfu.ca
Office hours: TBD

This is an interdisciplinary course that introduces students to the process and techniques involved in developing a computer or video game.

Prerequisites:
- Preferable:
  - basic Geometry and trigonometry
  - 3D studio Max or Maya
  - Photoshop
  - scripting
  - IAT 312: basic game mechanics, game critical theory

Course Description:
The course is project driven. Students will form teams and collaborate with one another to develop a game. During the course, students will learn how to apply basic principles of game design learned in IAT

312. In the process, they will be exposed to the production cycle, including idea inception, design, prototyping, testing, critiquing, refining, and polishing. Furthermore, students will be introduced to several tools within the lab classes that will aid in realizing their own projects and ideas. These tools include 2D game engines (e.g., Game Maker, RPG Maker), 3D game engines (e.g., Torque 3D, Half Life 2, Unreal Tournament).

Course Objectives:
Students who take the class should learn
- How to apply principles of game design in the development of a complete computer or video game
- How to balance a game design
- Conduct usability testing and refinement of the design
- Game development pipeline and production cycle
- Project dependant topics:
  - 3-D graphics
  - Scripting
  - Event based programming
  - level design
  - behavior scripting

Course Evaluation:
The course is heavily project driven. Students will focus on taking the concepts discussed through lectures to a large-scale group project. Students will be teamed in teams of 3. They will engage in developing a project of their choice. They are encouraged to use one or more tools. The project will be evaluated through prototypes that are critiqued. Students will then incorporate revisions for their final version demonstrated on the last day of classes.

Books:
Required:
Tracey Fullerton. 2004. *Game Design Workshop: Designing, Prototyping, and Playtesting*. CMP Books.

Useful Readings:
Hunicke, R., Chapman, V. 2004. "AI for Dynamic Difficult Adjustment in Games." *Proceedings of the Challenges in Game AI Workshop*, Nineteenth National Conference on Artificial Intelligence.

Raph Koster. 2004. *Theory of Fun for Game Design*. Paraglyph.

Brenda Laurel and Peter Lunenfeld. 2003. *Design Research: Methods and Perspectives*. MIT Press.

Ernest Adams and Andrew Rollings. 2006. *Fundamentals of Game Design (Game Design and Development Series*. Prentice Hall

Engines Used:
2D Game Engines: Game Maker, Torque, XNA
3D Game Engines: Torque 3D

<u>Other Engines</u>, suggested for projects if your project falls within specific genre: Warcraft III (Strategy), RPGMaker (RPG Anime), Neverwinter Nights 2 (RPG), Half Life 2 (FPS) (training videos for Half Life 2 are available), XNA (best for any genre games but need to be a really good programmer)

Grading:

Group Project	45%	(5% concept presentation
		15% paper prototype presentation/testing doc/game
		15% prototype presentation/testing doc/game
		10% final presentation/testing doc/game)
		Groups are 5-6
Lab and class ex.	20%	
Project Critiques	30%	submitted for paper prototype and prototype 1, individual (in the class online blog)
Weekly Assessment	5%	submitted by each individual (in the class online blog, verified by the group)

Each individual will have an online blog for the course, this is where he/she should post their critiques, and weekly assessment. Please create a blog for the course and send the URL to magy@sfu.ca

Individualized versions of the group grade will be calculated as: 40% attendance of group meetings, course presentations, and 60% weekly assessment.

Grades:
Grades will be assigned as follows: 95-100 A, 90-94.9 A-, 87-89.9 B+, 83-86.9 B, 80-82.9 B-, 77-79.9 C+, 73-76.9 C, 70-72.9 C-, 60-59.9 D, <49.9 F.

Tentative Lecture and Lab Schedule:

Day	Topics Covered	Deliverables/Resources
Week 1 9/4	**Lecture** Introduction to the Class Writing a Concept Document **Lab** Review of Game Mechanics through a game play session	Materials: MDA Workshop, URL: Materials: Chapters: 1, 2, 3, 4, and 5
Week 2 9/11 (Magy out of town)	**Lecture** **No lecture** **Lab** **Time for idea inception**	**DUE: blog URL** Materials: Chapter 6
Week 3 9/18	**Lecture** Introduction to Modding and Game Engines Game Development Process and Pipleline **Lab** Presentation of concept and critique *Voting on Ideas*	**DUE: Concept Document and Presentation (individual)** Materials: Supplied in lecture

Week 4 9/25 (MAGY Out of TOWN)	**Lecture** **No lecture** **Lab** Tools: 2D game Engine: Game Maker	Class Assignment: Game in GameMaker (individual)
Week 5 10/2	**Lecture** Paper Prototyping and play testing **Lab** Tools: 2D game engines: Torque 2D	Materials: Chapter 7 Class Assignment: Game in Torque 2D (individual)
Week 6 10/9	**Lecture** Paper prototypes presentation Critique of paper prototypes **Lab** Tools: 2D game engines: XNA and Torque X	**DUE: Paper Prototype of the Game AND playtesting report (**you will need to reserve time in the lab and get some people scheduled to play your game. You need at least 3 play sessions, i.e. 3 people playing your game) Class Assignment: Game in XNA (individual)
Week 7 10/16	**Lecture** 3D Game Engines Introduction What you need to know to work with Torque 3D **Lab** Tools: Torque 3D	**DUE: Paper prototype Critiques (in blog, individual)** Materials: Supplied in Lecture
Week 8 10/23	**Lecture** More on Torque 3D concepts **Lab** Tools: 3D game engine	Materials: Supplied in Lecture Class Assignment: Game in Torque 3D
Week 9 10/30	**Lecture** No lecture, work on prototype 1 **Lab** Time to work on Prototype 1	
Week 10 11/6	**Lecture** No lecture, work on playtesting the prototype **Lab** Time to work on Playtesting the prototype	
Week 11 11/13	**Lecture** Prototype 1 presentation and critique **Lab** Refining prototype	**DUE: Prototype 1 AND playtesting report (**you will need to reserve time in the lab and get some people scheduled to play your game. You need at least 5 play sessions, i.e. 5 people playing your game)
Week 12 11/20	**Lecture** No lecture (work on polishing your game) **Lab** Polishing	**DUE: Prototype 1 critique (in blog, individual)** **DUE: Final game**
Week 13 11/27	**Lecture** Presentation of final games **Game Fest (one time for all, TBD)** **Voting for BEST GAME**	**DUE: Presentation of final game** **DUE: Collect data on the game during play session, send document on game and playtesting end of the week.**