

**ITT Technical Institute**  
**GD350**  
**Game Design Strategies**  
**Onsite Course**

**SYLLABUS**

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**Credit hours:** 4

**Contact/Instructional hours:** 50 (30 Theory Hours, 20 Lab Hours)

**Prerequisite(s) and/or Corequisite(s):**

Prerequisite: GD330 Game Design Process

**Course Description:**

This course explores game design concepts, such as challenge, reward, penalties, game balance, level of difficulty, artificial intelligence, game genres and the social aspects of gaming. A group project involves designing a simple 2D computer game.

# Syllabus: Game Design Strategies

Instructor:	_____
Office hours:	_____
Class hours:	_____

## Major Instructional Areas

1. Game elements
2. The game development cycle
3. Game frameworks
4. Game programming strategies

## Course Objectives

1. Use appropriate tools, technology, and processes for game development.
2. Create the game elements necessary for a given design.
3. Build a game framework to organize a game program.
4. Apply game programming strategies to solve game design problems.

## SCANS Objectives

SCANS is an acronym for Secretary's Commission on Achieving Necessary Skills. The committee, created by the National Secretary of Labor in the early 1990s, created a list of skills and competencies that the committee feels are necessary for employees to function in a high-tech job market.

1. Identify possible game concepts and evaluate their appropriateness.
2. Determine game information, identify the methods to present the game information, convert it to desired format, and convey information through a variety of means.
3. Acquire, organize, analyze, and communicate game information using computers.
4. Identify the tasks necessary to complete a gaming project, taking personal responsibility for accomplishing goals.
5. Identify the attainable goals, facts, and arguments to clarify the problems and resolve conflicts to adjust quickly to new facts/ideas.
6. List how technological gaming systems work and operate effectively within them.
7. Demonstrate how a gaming system's structure relates to goals.
8. Demonstrate the needed information about how a gaming system is intended to function.
9. Identify the deviations in functioning of the gaming system, troubleshoot, and make changes to the system.
10. Determine the alternative game system designs based on feedback.
11. Identify and analyze the set of procedures, tools, or game mechanics, including middleware and algorithms that will produce the desired results.

## Course Outline

Note: All graded activities except the project are listed below in the pattern of <Unit Number>.<Assignment Number>. For example, Labs: 6.2 refers to the second lab activity in Unit 6.

Unit	Activities
1—Game Elements	<ul style="list-style-type: none"> <li>• Content Covered: <i>ActionScript 3.0 Game Programming University:</i></li> </ul>

Unit	Activities
	<ul style="list-style-type: none"> <li>○ Chapter 1, “Using Flash and ActionScript 3.0”</li> <li>○ Chapter 2, “ActionScript Game Elements”</li> <li>● Labs: 1.1, 1.2</li> </ul>
2—Game Frameworks	<ul style="list-style-type: none"> <li>● Read from <i>ActionScript 3.0 Game Programming University</i>: <ul style="list-style-type: none"> <li>○ Chapter 3, “Basic Game Framework: A Matching Game”</li> </ul> </li> <li>● Labs: 2.1</li> </ul>
3—Game Data	<ul style="list-style-type: none"> <li>● Read from <i>ActionScript 3.0 Game Programming University</i>: <ul style="list-style-type: none"> <li>○ Chapter 4, “Brain Games: Memory and Deduction”</li> </ul> </li> <li>● Labs: 3.1</li> </ul>
4—Animation	<ul style="list-style-type: none"> <li>● Read from <i>ActionScript 3.0 Game Programming University</i>: <ul style="list-style-type: none"> <li>○ Chapter 5, “Game Animation Shooting and Bouncing Games”</li> </ul> </li> <li>● Labs: 4.1</li> <li>● Project Part 1 Due</li> </ul>
5—Bitmaps	<ul style="list-style-type: none"> <li>● Read from <i>ActionScript 3.0 Game Programming University</i>: <ul style="list-style-type: none"> <li>○ Chapter 6, “Picture Puzzles: Sliding and Jigsaw”</li> </ul> </li> <li>● Labs: 5.1</li> </ul>
6—Physics	<ul style="list-style-type: none"> <li>● Read from <i>ActionScript 3.0 Game Programming University</i>: <ul style="list-style-type: none"> <li>○ Chapter 7, “Direction and Movement: Space Rocks”</li> </ul> </li> <li>● Labs: 6.1, 6.2</li> <li>● Project Part 2 Due</li> </ul>
7—Reusability	<ul style="list-style-type: none"> <li>● Read from <i>ActionScript 3.0 Game Programming University</i>: <ul style="list-style-type: none"> <li>○ Chapter 8, “Casual Games: Match Three”</li> <li>○ Chapter 10, “Questions and Answers: Trivia and Quiz Games”</li> </ul> </li> <li>● Labs: 7.1, 7.2</li> </ul>
8—Text and Strings	<ul style="list-style-type: none"> <li>● Read from <i>ActionScript 3.0 Game Programming University</i>: <ul style="list-style-type: none"> <li>○ Chapter 9, “Word Games: Hangman and Word Search”</li> </ul> </li> <li>● Labs: 8.1</li> <li>● Project Part 3 Due</li> </ul>
9—In-depth: Platform Games	<ul style="list-style-type: none"> <li>● Read from <i>ActionScript 3.0 Game Programming University</i>: <ul style="list-style-type: none"> <li>○ Chapter 11, “Action Games: Platform Games”</li> </ul> </li> <li>● Labs: 9.1</li> </ul>
10—In-depth: Top-down Games	<ul style="list-style-type: none"> <li>● Read from <i>ActionScript 3.0 Game Programming University</i>: <ul style="list-style-type: none"> <li>○ Chapter 12, “Game Worlds: Driving and Exploration Games”</li> </ul> </li> <li>● Labs: 10.1, 10.2</li> </ul>
11—Project Review	<ul style="list-style-type: none"> <li>● Project Part 4 Due</li> </ul>

## Instructional Methods

This course is designed to promote learner-centered activities and support the development of cognitive strategies and competencies necessary for effective task performance and critical problem solving. The course uses individual learning activities, performance-driven assignments, problem-based cases, and projects. These methods focus on building engaging learning experiences conducive to development of critical knowledge and skills that can be effectively applied in professional contexts.

Further, there is a course-long project, graded incrementally, with which you will demonstrate the mastery of strategies from to solve a range of game design problems and the development process.

## Instructional Materials and References

### Student Textbook Package

- Rosenzweig, G. (2011). *ActionScript 3.0 game programming university* (Custom ed.). Boston, MA: Pearson Custom.

### Other Required Resources

In addition to the student textbook package, the following is also required in this course:

- Internet access

### Equipment and Tools

- Flash CS3 Professional or newer
- Source files from FlashGameU.com

### References

#### ITT Tech Virtual Library

Log on to the ITT Tech Virtual Library at <http://library.itt-tech.edu/> to access online books, journals, and other reference resources selected to support ITT Tech curricula.

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#### Books

You may click “Books” or use the Library Catalog on the home page to find the following books.

#### **Books24x7**

- Pedersen, Roger E. *Game Design Foundations, Second Edition*. Plano, TX: Wordware Publishing, 2009.

General ActionScript Programming:

- Braunstein, Roger, Mims H. Wright, and Joshua J. Noble. *ActionScript 3.0 Bible*. Hoboken, NJ: John Wiley & Sons, 2008.
- Elst, Peter, Sas Jacobs, and Todd Yard. *Object-Oriented ActionScript 3.0*. New York: Friends of Ed, 2007.

ActionScript Animation and Game Programming:

- Peters, Keith. *AdvancED ActionScript 3.0 Animation*. New York: Friends of Ed, 2009.
- Fulton, Jeff, and Steve Fulton. *The Essential Guide to Flash Games: Building Interactive Entertainment with ActionScript 3.0*. New York: Friends of Ed, 2010.

Programming Design Patterns:

- Lasater, Christopher G. *Design Patterns*. Plano, TX: Wordware Publishing, 2007.

### Other References

The following resources may be found outside of the ITT Tech Virtual Library.

#### Web sites

- Kongregate Labs

[www.kongregate.com/labs](http://www.kongregate.com/labs) (accessed 10/28/10)

A community for new game designers, this site offers tutorials and discussion forums.

- gotoAndPlay()

[www.gotoandplay.it/](http://www.gotoandplay.it/) (accessed 10/28/10)

This free Web resource for both Web gamers and game developers is focused on webgame development with Macromedia Flash and independent game development.

- Mochiwiki—Mochi Flash Game Resource Center  
[wiki.mochimedia.com/Flash-Game%C2%A0Programming](http://wiki.mochimedia.com/Flash-Game%C2%A0Programming)  
(accessed 10/28/10)

This page is a portal to free tutorials on the fundamentals of game programming, animation, AI, math and physics for game design, sound, 3D engines and APIs, and more.

- Flash Kit  
[www.flashkit.com/](http://www.flashkit.com/) (accessed 10/28/10)  
This page links to Flash tutorials, Flash-related announcements, and discussion forums for developers.
- 8-Bit Rocket  
[www.8bitrocket.com](http://www.8bitrocket.com) (accessed 10/28/10)  
This blog also links to industry news, tutorials, videos, and games.

All links to Web references outside of the ITT Tech Virtual Library are always subject to change without prior notice.

## Course Evaluation and Grading

### Evaluation Criteria Table

The final grades will be based on the following categories:

CATEGORY	WEIGHT
Labs	35%
Project Part 1	10%
Project Part 2	10%
Project Part 3	10%
Project Part 4	35%
<b>Total</b>	<b>100%</b>

Note: Students are responsible for abiding by the Plagiarism Policy.

### Grade Conversion Table

The final grades will be calculated from the percentages earned in the course, as follows:

A	90–100%	4.0
B+	85–89%	3.5
B	80–84%	3.0
C+	75–79%	2.5
C	70–74%	2.0
D+	65–69%	1.5
D	60–64%	1.0
F	<60%	0.0

*(End of Syllabus)*