NEW YORK CITY COLLEGE OF TECHNOLOGY OF THE CITY UNIVERSITY OF NEW YORK
Department of Computer Systems Technology
Department of English

CST 1102 Programming Narratives: Computer Animated Storytelling
(3 credits, 3 hours)

Prerequisites
ENG 1101 English Composition I and CUNY proficiency in Mathematics.

Course Description
In this interdisciplinary course students will leverage problem solving, computer programming and writing skills to produce a narrative-driven video game prototype. Students study the structure of narratives and are introduced to concepts of problem solving using constructs of logic inherent in computer programming languages. Emphasis is placed on writing and applying solutions to actual problem instances.

Course Objectives
Upon successful completion of the course, students should be able to:
- Exhibit an understanding of the steps required in solving a problem using a computer.
- Solve problems by referring to solutions from a problem bank covered during class.
- Create an application based upon object-oriented concepts using a code generation tool.
- Demonstrate understanding of flowcharting techniques to solve an algorithm.
- Organize, contextualize, and access digital information as applied to content mapping.
- Demonstrate an understanding of the structure of game stories.
- Show reading comprehension of software showing the coding paradigms of repetition loops, decision statements, arrays and modules.
- Use a range of language, formal to informal, appropriate to subject, purpose, and audience.
- Demonstrate understanding of various narrative structures.
- Write, proofread, and revise clear and logical sentences using correct spelling, conventional punctuation, correct grammar and syntax. Use varied sentence structure. Order and connect sentences and paragraphs effectively, using transitions and parallelism.
- Cite sources within the text and on a reference page using appropriate documentation format.

General Education Outcomes
- **SKILLS**
  - **Communication**
    Communicate in diverse settings and groups, using written (both reading and writing), oral (both speaking and listening), and visual means, and in more than one language.
  - **Inquiry/Analysis**
    Employ scientific reasoning and logical thinking.
- **INTEGRATION**
  - **Work productively within and across disciplines.**
    Make meaningful and multiple connections among the liberal arts and between the liberal arts and the areas of study leading to a major or profession.

Information literacies
> Gather, interpret, evaluate, and apply information discerningly from a variety of sources.

- **VALUES, ETHICS, RELATIONSHIPS/**
  Professional/Personal Development
  > Work with teams, including those of diverse composition. Build consensus. Respect and use creativity.

Required Textbooks

Gaddis, Tony. *Starting Out with Alice: A Visual Introduction to Programming*. 3rd ed. New York: Addison-Wesley, 2012.

Lebowitz, Josiah and Chris Klug. *Interactive Storytelling for Video Games: A Player-Centered Approach to Creating Memorable Characters and Stories*. New York: Taylor & Francis, 2011.

Additional readings of short narrative of various kinds are assigned (see Course Outline).

New York City College of Technology Policy on Academic Integrity:

Students and all others who work with information, ideas, texts, images, music, inventions, and other intellectual property owe their audience and sources accuracy and honesty in using, crediting, and citing sources. As a community of intellectual and professional workers, the College recognizes its responsibility for providing instruction in information literacy and academic integrity, offering models of good practice, and responding vigilantly and appropriately to infractions of academic integrity. Accordingly, academic dishonesty is prohibited in The City University of New York and at New York City College of Technology and is punishable by penalties, including failing grades, suspension, and expulsion. The complete text of the College policy on Academic Integrity may be found in the catalog.

Attendance and lateness:

You are expected to attend each class meeting. A student may be absent without penalty for <u>ten percent</u> (10%) of the number of scheduled class meetings during the semester. This percentage translates to three allowable absences from class. Two instances of lateness will equal one absence.

Final Course Grade Breakdown:

Annotated bibliography	10%
Midterm	10%
Final	10%
Problem-solving assignments	10%
Writing assignments	30%
Game design document	10%
Project	20%

Project: In the course project, you will develop a videogame prototype. You will use Alice, a free interactive 3D graphics program that could be used to create animations. Students can download Alice from www.alice.org for free. The site also contains information, tutorials, and forums on how to use Alice, which will be helpful for the course project and problem-solving assignments.

The following are the project milestones with their due dates:
1. Prepare a flowchart (www.visuallogic.org) and concept map (vue.tufts.edu) of the video game prototype **(Week 3)**
2. Write and program a setting for the video game **(Week 4)**
3. Write and program characters (protagonist and antagonist) for the video game **(Week 5)**
4. Integrate videogame setting and characters **(Week 6)**
5. Implement the characters' interactions among themselves and with their world (the story) **(Week 8)**
6. Develop individually a character side-quest within the group-developed video game **(Week 10)**
7. Use events to allow user interactivity with the story **(Week 12)**
8. Integrate the main story and side-quest **(Week 14)**

Game design document: analysis, design, and project description.
The following are possible contents of each section of the game design document:
- Analysis: Game narrative summary, target audience, review of existing projects, and media selection.
- Design: Player characteristics, content analysis, goals and objectives, and description of the delivery platform.
- Project Description: Narrative of project design, review of relevant literature, flowchart, concept maps and storyboards.

Course Outline:

Week	Writing	Computing	Project Milestones
1	Game Stories, Interactivity, and What Players Want Introduction to different kinds of narratives and literary devices Introduction to Concept Mapping.	General problem-solving methods. Introduction to logical step solutions. Introduction to flowcharting	Read Chapter 1 and Preparing an annotated bibliography
2	A Brief History of Storytelling in Games Short Stories—brief stories focusing on one character and event	Introduction to Alice and Programming Objects (Alice/Chapter 1)	Read Chapter 2 and Leo Tolstoy's "Three Questions"
3	The Hero's Journey and the Structure of Game Stories Myth—ancient stories meant to explain nature or life Plays—stories in the form of dialogue, meant to be performed on the stage or in a movie	Programming in Alice (Alice/Chapter 2)	Read Chapter 3 and Sophocles' "Oedipus Rex" Prepare a flowchart and concept map of the story

4	The Story and the Characters Fantasy—fiction stories about unrealistic characters and events that would never happen	Programming in Alice (cont.) (Alice/Chapter 2)	Read Chapter 4 and Alexandra Duncan's "Rampion" Create the setting for the background story in Alice
5	Making Stories Emotional Horror—fiction stories that are scary or horrific	Variables and Functions (Alice/Chapter 3)	Read Chapter 5 and Shirley Jackson's "The Lottery" Create the characters for the background story in Alice
6	Defining Interactive and Player-Driven Storytelling Quest narratives—the character(s) must work to achieve a goal	Variables and Functions (cont.) (Alice/Chapter 3)	Read Chapter 6 and Richard Connell's "The Most Dangerous Game" Integrate setting and characters of the background story in Alice
7	Midterm Fully Traditional and Interactive Traditional Stories	Midterm Decision Structures (Alice/Chapter 4)	Read Chapter 7 Draft sections of game design document
8	Multiple-Ending Stories Science Fiction—fiction stories based on scientific fact	Decision Structures (cont.) (Alice/Chapter 4)	Read Chapter 8 and Ray Bradbur's "A Sound of Thunder" Implement the interactions between characters and the setting in Alice
9	Branching Path Stories Historical Fiction—fiction stories set in the past, containing some true facts	Repetition Structures (Alice/Chapter 5)	Read Chapter 9 and Nathaniel Hawthorne's "Young Goodman Brown" Review relevant literature for game design document
10	Open-Ended Stories	Repetition Structures (cont.) (Alice/Chapter 5)	Read Chapter 10 and Frank Stockton's "The Lady or the Tiger?" Individually develop a character side-quest to the background story in Alice
11	Fully Player-Driven Stories	Events (Alice/Chapter 7)	Read Chapter 11 Submit complete annotated bibliography

12	The Argument for the Supremacy of Player-Driven Storytelling	Events (cont.) (Alice/Chapter 7)	Read Chapter 12 Using events to allow user interactivity with the story Write literature review
13	The Argument Against the Supremacy of Player-Driven Storytelling	Methods and Functions (Alice/Chapter 6)	Read Chapter 13 Complete game design document
14	What Players Really Want: The Most Important Issue	Methods and Functions (cont.) (Alice/Chapter 6)	Read Chapter 14 Integrate main story and side-quest
15	The Future of Storytelling in Games	Review and final	Read Chapter 15 Project presentation

Assessment Criteria:

For the successful completion of this course a student should be able to:	Evaluation methods and criteria
Exhibit an understanding of the steps required in solving a problem using a computer.	Students will describe problem, identify inputs, processes and desired outcomes in problem-solving assignments, class work and tests. Students will solve problems in assignments, class work and tests.
Solve problems by referring to solutions from a problem bank covered during class	Students will demonstrate problem-solving abilities in assignments, class work and tests.
Create an application based upon object-oriented concepts using a code generation tool.	Students will use object-oriented programming concepts to create a video game prototype or animation with Alice in problem-solving assignments and the project.
Demonstrate an understanding of flowcharting techniques to solve an algorithm.	Students will solve problems in assignments, class work and tests.
Organize, contextualize, and access digital information as applied to content mapping.	Students will create and share non-linear visual representations of their game stories.
Demonstrate an understanding of the structure of game stories.	Students will write interactive stories for video games.

Show reading comprehension of software showing the coding paradigms of repetition loops, decision statements, arrays and modules.	Students will identify coding paradigms in problem-solving assignments, class work and tests.
Use a range of language, formal to informal, appropriate to subject, purpose, and audience.	Students will write both a game design document and interactive stories for video games.
Demonstrate understanding of various narrative structures.	Students will read for structure, annotate, and discuss short narratives of various kinds (e.g., myth, fantasy, science fiction, horror, historical fiction, plays, short stories, and quests).
Write, proofread, and revise clear and logical sentences using correct spelling, conventional punctuation, correct grammar and syntax. Use varied sentence structure. Order and connect sentences and paragraphs effectively, using transitions and parallelism.	Students will complete writing assignments and a game design document.
Cite sources within the text and on a reference page using appropriate documentation format.	Students will successfully research and document relevant literature for the game design document.

General Education Outcomes and Assessment:

Learning Outcomes	Assessment Method
SKILLS/Inquiry/Analysis Students will employ scientific reasoning and logical thinking.	Students will describe problem, identify inputs, processes and desired outcomes in problem-assignments, class work and tests. Students will solve problems with in assignments, class work and tests. Students will identify coding paradigms in problem-solving assignments, class work and tests.
SKILLS/Communication Students will communicate in diverse settings and groups, using written (both reading and writing), oral (both speaking and listening), and visual means, and in more than one language.	Students will compare and contrast different kinds of narrative during class discussions of readings. Students will create a game design document in which they describe the Alice project and how it was implemented through oral presentations. Students will demonstrate fluency in writing and presenting interactive stories for video games,

	including concept maps.
INTEGRATION/Work productively within and across disciplines Students will make meaningful and multiple connections among the liberal arts and between the liberal arts and the areas of study leading to a major or profession.	Students will merge their understanding of the reading of short narrative of various kinds, writing and programming to create a video game prototype.
INTEGRATION/Information literacies Students will gather, interpret, evaluate, and apply information discerningly from a variety of sources.	Students will apply their understanding of the different kinds of narratives to their own creative writing and programming. Students will access and use relevant literature for their game design document.
VALUES, ETHICS, RELATIONSHIPS/ Professional/Personal Development Students will work with teams, including those of diverse composition. Build consensus. Respect and use creativity.	Alice project in which students will work in groups, build consensus and respect and use creativity.

Bibliography

Gaddis, Tony. *Starting Out with Alice: A Visual Introduction to Programming*. 3rd ed. New York: Addison-Wesley, 2012.

Gee, James Paul. *Good Video Games and Good Learning: Collected Essays on Video Games, Learning, and Literacy*. 2nd ed. New York: Peter Lang, 2013.

Gee, James Paul. *What Video Games Have to Teach Us About Learning and Literacy*. 2nd ed. New York: Palgrave MacMillan, 2007.

Lebowitz, Josiah and Chris Klug. *Interactive Storytelling for Video Games: A Player-Centered Approach to Creating Memorable Characters and Stories*. New York: Taylor & Francis, 2011.

Vogler, Christopher . *The Writer's Journey: Mythic Structures for Writers*. 3rd ed. Studio City, CA: Michael Wiese, 2007.