



**FLORIDA INTERNATIONAL UNIVERSITY
UNIVERSITY CURRICULUM COMMITTEE**
Proposal for a Course Change

DO NOT TYPE IN THIS BOX	
Bulletin #:	<u>6</u>
Academic Year:	<u>2020-2021</u>

PART I. FILL OUT THIS SECTION COMPLETELY

- School/College Engineering and Computing
Div./Dept. in Which Taught Computer Science
- CAP 4 052 3
Alpha Prefix 1st Digit Last 3 Digits "C"-lec-lab "L"-Lab Cr. Hrs.
- Present Course Title Game Design & Dev

PART II. FILL OUT CHANGE INFORMATION ONLY

Change Effective 3 / 15 / 2021

- New Course Title _____
- New Abbreviated course Title (for computer class schedules, transcripts) _____
LIMITED TO 25 Characters (including spaces)

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|------------------|-----------------|-------------------|----------------------------|
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| New Alpha Prefix | New 1st Digit | New Last 3 Digits | Change "C"-lec-lab "L"-Lab |
- Change Credit Hours: From _____ To _____

- New Catalog Description/Major Topics** (not to exceed 200 characters including spaces)
College of Medicine and College of Law: Attach description not exceeding 1,000 characters including spaces.

- New Prerequisite(s): (STA-2023 or STA-3033) and COP-3530 (Note: Remove CAP-4104)
- New Corequisite(s): _____
- Explain Reclassification Request:**

Upon reviewing the prerequisite/course outcomes for CAP-4052 and the course outcomes for CAP-4104, we believe CAP-4104 is not essential for CAP-4052.

- Does this proposed change impact the assessment process of a program or certificate? If yes, then send notification to assessment@fiu.edu.

PROPOSAL REQUESTED BY:

Faculty Contact	<u>Trevor Cickovski</u>		<u>3</u> / <u>15</u> / 20 <u>21</u>
	(Type name)	(Signature)	
	<u>tcickovs@fiu.edu</u>	<u>x8043</u>	
	(Email address)	(Phone number)	
Chairperson (Dept./Div.)	<u>Jason Liu</u>		<u>3</u> / <u>18</u> / 20 <u>21</u>
	(Type name)	(Signature)	
Chairperson (Curr. Comm.)	<u>Wei-Chiang Lin</u>		<u>03</u> / <u>19</u> / 20 <u>21</u>
	(Type name)	(Signature)	
College/School Dean	<u>Mark Weiss</u>		<u>4/1/2021</u> / _____ / 20 <u> </u>
	(Type name)	(Signature)	

Submit one original form. Attach one copy of the Course Justification and Course Syllabus; Course Description, Objectives, Learning Outcomes, Major Topics and textbooks.

Degree Change Request: B.A./B.S. in Computer Science

Rationale for Changes: Upon reviewing the prerequisite outcomes for CAP-4052 and the course outcomes for CAP-4104 (see below), we believe CAP-4104 may help students perform better in CAP-4052 but is not essential for CAP-4052.

Prerequisite outcomes for CAP-4052:

1. Familiar with techniques of algorithm analysis and problem solving
2. Significant programming experience in a modern programming language
3. Familiar with encapsulation using functions
4. Familiar with concepts of probability
5. Familiar with arrays, pointers, dynamic memory, multiprocessing

Course outcomes for CAP-4104:

1. Develop and use a conceptual vocabulary for analyzing human interaction with software in context: affordance, [SEP]conceptual model, feedback, and so forth.
2. Define a user-centered design process that explicitly takes account of the fact that the user is not like the [SEP]developer or their acquaintances.
3. Use prototyping techniques to gather, and report, user responses.
4. Use a variety of techniques to evaluate a given UI, and compare the constraints and benefits of different evaluative methods.
5. Design a user study that will yield quantitative results. 2
6. Conduct a qualitative evaluation and discuss/report the results.

7. Conduct and report on a study that utilizes both qualitative and quantitative evaluation.

8. Discuss the advantages (and disadvantages) of non-mouse interfaces.

Old (Course Descriptions)	New (Course Descriptions)
CAP 4052 Introduction to Game Design & Development (3). Introduction to game design and development concepts such as iterative design, prototyping, playtesting, game structure, game rules and mechanics, game theory, game system dynamics, and game balance. Prerequisite: (STA 2023 or STA 3033) and COP 3530 and CAP 4104	CAP 4052 Introduction to Game Design & Development (3). Introduction to game design and development concepts such as iterative design, prototyping, playtesting, game structure, game rules and mechanics, game theory, game system dynamics, and game balance. Prerequisite: (STA 2023 or STA 3033) and COP 3530 and CAP 4104

School of Computing and Information Sciences

Course Title: Introduction to Game Design & Development **Date:** 3/5/2020

Course Number: CAP 4052

Number of Credits: 3

Subject Area: Computer Applications	Subject Area Coordinator: Leonardo Bobadilla email: bobadilla@cs.fiu.edu
Catalog Description: Introduction to game design and development concepts such as iterative design, prototyping, playtesting, game structure, game rules and mechanics, game theory, game system dynamics, and game balance.	
Textbook: Fullerton – Game Design Workshop, 4 th Edition, CRC Press, 2018, 978-1138098770	
References:	
Prerequisites Courses: (STA-2023 or STA-3033) and COP-3530	
Corequisite Courses: None	

Type: Elective for CS (Applications group).

Prerequisites Topics:

1. Familiar with techniques of algorithm analysis and problem solving
2. Significant programming experience in a modern programming language
3. Familiar with encapsulation using functions
4. Familiar with concepts of probability
5. Familiar with arrays, pointers, dynamic memory, multiprocessing

Course Outcomes:

1. Be familiar with the history and types of games.
2. Be familiar with the iterative game design process.
3. Be familiar with prototyping and playtesting.
4. Be familiar with game system dynamics.
5. Be familiar with game rules and mechanics.
6. Be exposed to game theory.
7. Be exposed to game balance and completeness.
8. Master development of games to address topics in the above outcomes.

School of Computing and Information Sciences
CAP 4052
Introduction to Game Design & Development
Relationship between Course Outcomes and Program Outcomes

BS in CS: Program Outcomes	Course Outcomes
a) Demonstrate proficiency in the foundation areas of Computer Science including mathematics, discrete structures, logic and the theory of algorithms	6, 8
b) Demonstrate proficiency in various areas of Computer Science including data structures and algorithms, concepts of programming languages and computer systems.	8
c) Demonstrate proficiency in problem solving and application of software engineering techniques	2, 3, 4, 5, 8
d) Demonstrate mastery of at least one modern programming language and proficiency in at least one other.	8
e) Demonstrate understanding of the social and ethical concerns of the practicing computer scientist.	
f) Demonstrate the ability to work cooperatively in teams.	8
g) Demonstrate effective communication skills.	2, 3, 4, 5, 7

Assessment Plan for the Course & how Data in the Course are used to assess Program Outcomes

Student and Instructor Course Outcome Surveys are administered at the conclusion of each offering, and are evaluated as described in the School's Assessment Plan:
<http://www.cis.fiu.edu/programs/undergrad/cs/assessment/>

School of Computing and Information Sciences
CAP 4052
Introduction to Game Design & Development
Outline

Topic	Number of Lecture Hours	Outcome
1. <u>Introduction to Games</u> 1.1. Brief History 1.2. Types of games 1.3. Iterative design process 1.4. Prototyping and playtesting	10	1, 2, 3
2. <u>Game Rules and Mechanics</u> 2.1. Players 2.2. Objectives 2.3. Procedures 2.4. Rules	10	4, 8
3. <u>Game Actions</u> 3.1. Goals and feedback 3.2. Game time and levels 3.3. Story and world building	5	5, 8
4. <u>System Dynamics</u> 4.1. Terminology 4.2. Information structure 4.3. Control and feedback 4.4. Interaction loops and arcs	5	4, 8
5. <u>Game Theory</u> 5.1. History 5.2. Basics	3	6
6. <u>Game Balance</u> 6.1. Completeness 6.2. Balance	5	7, 8

School of Computing and Information Sciences
CAP 4052
Introduction to Game Design & Development

Course Outcomes Emphasized in Laboratory Projects / Assignments

Outcome	Number of Weeks
Introduction to games 1, 2, 3	2
Game rules and mechanics 4, 8	2
Game actions 5,8	2
System dynamics 4,8	2
Game theory 6	2
Game balance and completeness 7,8	2

Oral and Written Communication

No significant coverage

Written Reports		Oral Presentations	
Number Required	Approx. Number of pages	Number Required	Approx. Time for each
0	0	0	0

Social and Ethical Implications of Computing Topics

No significant coverage

Topic	Class time	student performance measures

School of Computing and Information Sciences
CAP 4052
Introduction to Game Design & Development

Approximate number of credit hours devoted to fundamental CS topics

Fundamental CS Area	Core Hours	Advanced Hours
Algorithms:		
Software Design:		
Computer Organization and Architecture:		
Data Structures:		
Concepts of Programming Languages		

Theoretical Contents

Topic	Class time

Problem Analysis Experiences

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Solution Design Experiences

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School of Computing and Information Sciences
CAP 4052
Introduction to Game Design & Development

The Coverage of Knowledge Units within Computer Science Body of Knowledge¹

Knowledge Unit	Topic	Type	Lecture Hours

¹See Appendix A in Computer Science Curricula 2013 at:
https://www.acm.org/binaries/content/assets/education/cs2013_web_final.pdf