FAIRMONT STATE UNIVERSITY

FINAL FACULTY SENATE APPROVAL ON APRIL 10, 2018

MEMORANDUM

TO: Faculty Senate

FROM: Jack Kirby JEK

DATE: April 4, 2018

SUBJECT: Curriculum Proposal #17-18-24 REV #1

Game Design

I recommend approval of the attached Curriculum Proposal 17-18-24 REV #1. This proposal seeks to introduce a new minor in Game Design, with a core collaboration of coursework from the Graphic Design Technology program and the Computer Science program. This new minor would use several existing courses from each of these programs and include approved Art and Communication courses to provide a solid foundational Game and Interactive Design instructional curriculum.

This minor would allow interested Computer Science and Graphic Design Technology majors, an opportunity to pick a minor in a field that is interesting and intimately tied to their majors. The minor would also be of interest to students of any other major who wish to explore foundational game design concepts.

Dr. Christina Lavorata
Dr. Donald Trisel
Mr. Vijay Raol
Mr. Michael Waide
Ms. Laura Ransom
Ms. Cheri Gonzalez
Ms. Lori Schoonmaker

FAIRMONT STATE UNIVERSITY

MEMORANDUM

TO: Curriculum Committee

FROM: Jack Kirby

DATE: April 2, 2018

SUBJECT: Curriculum Proposal #17-18-24 REV #1

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FAIRMONT STATE UNIVERSITY

MEMORANDUM

TO: Curriculum Committee

FROM: Jack Kirby JRK

DATE: March 9, 2018

SUBJECT: Curriculum Proposal #17-18-24

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TO: Curriculum Committee

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DATE: March 9, 2018

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CURRICULUM PROPOSAL (Submit one hard copy and an electronic copy to the Associate Provost by the second Tuesday of the month.)

Proposal Number:	#17-18-24
School/Department/Program:	College of Science and Technology; Architecture + Graphics, Graphic Design Technology; Department of Math and Computer Science, Computer Science Program.
Preparer/Contact Person:	Vijay Raol
Telephone Extension:	4104
Date Originally Submitted:	
Revision (Indicate date and label it Revision #1, #2, etc.):	3/28/19 Revision #1
Implementation Date Requested:	Fall 2018

I. **PROPOSAL.** This proposal seeks to introduce a new minor in Game Design, with a core collaboration of coursework from the Graphic Design Technology program and the Computer Science program. This new minor would use several existing courses from each of these programs and include approved Art and Communication courses to provide a solid foundational Game and Interactive Design instructional curriculum.

This minor would allow interested Computer Science and Graphic Design Technology majors, an opportunity to pick a minor in a field that is interesting and intimately tied to their majors. The minor would also be of interest to students of any other major who wish to explore foundational game design concepts.

II. **DESCRIPTION OF THE PROPOSAL.** Provide a response for each letter, A-H, and for each Roman Numeral II–V. If any section does not apply to your proposal, reply N/A.

A. Deletion of course(s) or credit(s) from program(s)

N/A

Total hours deleted. N/A

B. Addition of course(s) or credit(s) from program(s)

- COMP/GRFX 2203 Introduction to Game Principles -3 CR
- COMP/GRFX 4460 Game Design and Implementation– 4 CR

Total hours added. 7

C. Provision for interchangeable use of course(s) with program(s)

With the exception of the courses outlined above, this minor will mainly use courses from the existing Graphic Design Technology and Computer Science programs.

D. Revision of course content. Include, as an appendix, a revised course description, written in complete sentences, suitable for use in the university catalog.

To be suitable for the new minor being proposed and to meet the demands of the diversifying and highly technical multimedia industry, the following existing course descriptions will be updated:

1. GRFX 3131

Detailed descriptions provided in Appendix B

E. Other changes to existing courses such as changes to title, course number, and elective or required status.
N/A

F. Creation of new course(s). For each new course

1. Designate the course number, title, units of credit, prerequisites (if any), ownership (FSU or shared) and specify its status as an elective or required course. If you are creating a shared course, attach a memo from the Deans of the affected Schools explaining the rationale for the course being shared.

    1. COMP/GRFX 2203 Introduction to Game Principles, 3 CR, FSU, Required
       Prerequisites: GRFX 1113
    2. COMP/GRFX 4460 Game Design and Implementation, 4 CR, FSU, Required
       Prerequisites: COMP 1108, COMP 2203

2. Include, as an appendix, a course description, written in complete sentences, suitable for use in the college catalog.
   Appendix C

3. Include, as an appendix, a detailed course outline consisting of at least two levels.
   Appendix D

4. In order to meet the requirements as outlined in Goal One of the Strategic Plan, please include Outcome Competencies and Methods of Assessment as an appendix. Examples are available upon request from the Chair of the Curriculum Committee.

   Outcomes for this new Minor are presented in Appendix A.

   COMP/GRFX 2203 Course Outcomes
   At the end of this course, students will be able to:

Outcome	***Direct Assessment***	***Satisfactory Performance Standard***
1. Define the process of game design	Report/Quiz	70% or higher grade
2. Develop a logical storyboard for a game	Assignment	70% or higher grade
3. Explore the type of game engines and development environments	Activity/Report	70% or higher grade
4. Design simple 2D interaction	Project	70% or higher grade

COMP/GRFX 4460 Course Outcomes
At the end of this course, students will be able to:

Outcome	*Direct Assessment*	*Satisfactory Performance Standard*
1. Navigate a game engine interface	Quiz/Assignment	70% or higher grade
2. Import custom artwork, characters and scenes in a game engine	Assignment/Project	70% or higher grade
3. Customize and develop scripts for game interactivity	Assignment/Project	70% or higher grade
4 Export games for desktop, web and mobile devices	Project	70% or higher grade

G. Attach an itemized summary of the present program(s) affected, if any, and of the proposed change(s).

Describe how this proposal affects the hours needed to complete this program. Specifically, what is the net gain or loss in hours? Use the format for Current and Proposed Programs in Appendix A.

III. RATIONALE FOR THE PROPOSAL.

A. **Quantitative Assessment**: Indicate the types of assessment data, i.e., surveys, interviews, capstone courses, projects, licensure exams, nationally-normed tests, locally developed measurements, accreditation reports, etc., that were collected and analyzed to determine that curricular changes were warranted. Quantitative data is preferred.

Game and interactive content design is one of the fastest growing employment areas within a broader Graphics discipline. The Bureau of Labor Statistics states that the median salary for Multimedia Artists and Animators for 2016 was $65,300 with an expected growth of 8% over the next decade.

With the advent of mobile technologies and the growth in areas of interactive designing, there is immense opportunity and interest for skills and training in this field. Interested prospective students inquiring about game design regularly approach institutional recruiters and department faculty. The addition of such a minor would also help bolster the unique placement of the Graphic Design Technology program within a technological foundation.

Moreover, students with a foundation in game design may also find employment in rapidly growing employment sectors such as Mobile Design, Interactive Design, Augmented Reality and Virtual Reality.

B. **Qualitative Assessment**: Based upon the assessment data above, indicate why a curricular change is justified. Indicate the expected results of the change. Be sure to include an estimate of the increased cost, or reduction in cost of implementation. FOR EXAMPLE: Will new faculty, facilities, equipment, or library materials be required?

The proposed minor is planned to be a collaborative offering between the GDT and the CS programs. Apart from a minor modification to 1 existing Graphics course and the addition of 2 new courses which are proposed to be cross-listed both for CS and GDT, no other changes will be required. The current programs are equipped with all laboratory facilities and resources to offer such a minor. Some specialized training may be required for faculty to teach the proposed Game design and implementation courses.

IV. Should this proposal affect any course or program in another school, a memo must be sent to the Dean of each school impacted and a copy of the memo(s) must be included with this proposal. In addition, the Deans of the affected schools must sign below to indicate their notification of this proposal.

By signing here, you are indicating your college's/school's notification of this proposal.

College/School	Dean	Signature
Science and Technology	**Dr. Donald Trisel**	

V. Should this proposal affect any course to be added or deleted from the general studies requirements, a memo from the chair of the General Studies Committee indicating approval of the change must be included with this proposal.

N/A

VI. ADDITIONAL COMMENTS.

Offering such a unique minor would be an attractive recruitment tool, as well as serve to provide current and employable skills and training in a very popular and growing field.

APPENDIX A

Minor in Game Design

Proposed Program

Required Major Courses		HRS
GRFX 1113	Multimedia Concepts	3
GRFX 1222	Internet Animation	3
COMP 1102	Principles of Programming I	3
COMP 1108	Principles of Programming II	3
GRFX 3131	Motion Graphics I	3
GRFX 4143	Motion Graphics II	3
COMP/ GRFX 2203	Introduction to Game Principles	3
COMP/GRFX 4460	Game Design and Implementation	4
TOTAL Required MAJOR Courses	N/A	
Major Electives	N/A	
Minor Requirements/Electives (if minor is required)	N/A	
TOTAL HOURS FOR MINOR	25	
	25	

Outcomes for the Minor

Outcome	*Direct Assessment*
Discuss the different types of digital game environments	Quiz/Exam
Demonstrate foundational knowledge of the different stages of game design	Quiz/Assignments
Develop appropriate logical structure for interactive situations related to game design	Assignments/Projects
Produce functional game designs for output on various platforms	Assignment/Project

APPENDIX B

Proposed Course Description Updates

Course # and Name	Current Description	Proposed Description	Hrs
GRFX 3131 –Motion Graphics I	**This course introduces the fundamentals of motion graphics, including graphics and promos for television networks and film titles and logos for advertising. The focus is on design presentation and development, screen composition, graphic transitions, typography, and content**	**This course introduces the fundamentals of 3D modeling and related technology, along with application specific to the design of content for entertainment, gaming and character development.**	**3**

APPENDIX C

Proposed New Course Description

Course # and Name	Description	Hrs
COMP/GRFX 2203 Introduction to Game Principles	**This course is an introduction to basic principles of interactivity and game design. Asset creation, event handling, scores, displays, and sequencing is covered.** ***Prerequisites: GRFX 1113***	3
COMP/GRFX 4460 Game Design and Implementation	**This comprehensive course in game design and implementation covers an analysis of the game engine technology and the implementation of artwork and custom computational structure within a game engine framework.** ***Prerequisites: COMP 1108, COMP/GRFX 2203***	4

APPENDIX D

Proposed New Course Detailed Description

Course # and Name	Description	Hrs
COMP/GRFX 2203 Introduction to Game Principles	**This introductory course explores the basic principles of gaming and interactivity setup with an emphasis on specific aspects and considerations for interactive design for different platforms. Event programming, visual asset design, input/output, score, display control and camera movement will be covered.** **Topics covered in this course include:** **1. Introduction to interactivity** **• Defining interactivity in digital systems** **• Concept of event handling** **• Trigger, event, result** **2. Planning an interactive application** **• Initial brainstorming and write-up** **• Research** **• Plot development** **• Storyboarding** **3. Designing game assets in 2D** **• Designing vector artwork** **• Animated content design** **• PNG sequences** **4. Basic game programming fundamentals** **• Datatypes, variables, event handling** **• Timers and display-types** **• Loops and decision making** **5. Storing and accessing from remote servers** **• Connecting to external data** **• Types of data transfer formats** **• Storage and retrieval** **6. Output for different devices** **• Export to desktop, mobile or web** **• About plugins** **• Updates** **Assessments:** **• Quiz, Assignments, Projects**	3

COMP/GRFX 4460 Game Design and Implementation

This is a capstone course for students seeking the minor in Game Design. The course content will include the fundamentals of a Game Engine framework, and will serve to function as a final project oriented experience for students within the minor. 4

This course will further provide application of concepts from previous courses including custom game scene development, character development and object oriented programming to complete the game interactions.

Topics covered in this course include:

1. **Exploring popular game engines**
    - **Extending simple games**
    - **Introduction to Unity**
    - **Introduction to Unreal**
2. **Importing game assets from different design environments**
    - **Importing artwork (vector and raster)**
    - **Importing audio**
    - **Importing 3D assets**
3. **Development of game logic in popular game programming language**
    - **OOP concepts in game design**
    - **Objects, Classes and Instances**
    - **Implementation within game environment**
4. **Design of levels, battle systems and effects**
    - **Cloud spawner**
    - **Cloud collector**
    - **Camera movement**
    - **Backgrounds**
5. **Animation of 2D and 3D Characters**
    - **Animating UI elements**
    - **Importing Assets**
6. **Save and load game data**
    - **Understanding player statistics**
    - **Saving user levels**
    - **Loading game data**

Assessments:

- **Mostly Project work**