



## UNIT OVERVIEW

### GAM 303 Rapid Prototyping

#### *Bachelor of Creative Arts (Games Design)*

#### TRIMESTER 4

6 CREDIT POINTS | 3 hours per week face to face | 7 hours per week personal study

Core text: Gibson, J 2014, *Introduction to Game Design, Prototyping, and Development: From Concept to Playable Game with Unity and C#*, Addison-Wesley Professional, USA  
Prerequisite: GAM 403 Game Programming I

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## UNIT DESCRIPTION

This unit extends the student's fundamental knowledge of game programming through the practical application of the rapid prototyping process. The unit develops the approach needed when approaching game programming projects by engaging in a number of exercises that will explore the mindset required when thinking about the world in terms of systems and interconnected relationships and meanings. At the conclusion of the unit students will have the correct mindset necessary to explore the challenges of digital games development.

## STUDENT LEARNING OUTCOMES

### Knowledge

On successful completion of this unit students will have knowledge and understanding of:

- a) Game analysis frameworks
- b) Fundamentals of prototyping
- c) Game testing
- d) Thinking in digital systems
- e) Agile software development
- f) Scrum methodology

### Skills

On successful completion of this unit students will be able to:

- g) Developing digital prototypes
- h) Rapid prototyping

### Generic Attributes

On successful completion of this unit students will be able to demonstrate:

- i) Creative, critical and analytical thinking, and effective problem solving
- j) A commitment to life-long learning

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## TOPICS

- Game analysis frameworks
- The layered Tetrad
- Design Goals
- Paper Prototyping
- Digital Prototyping
- Game Testing
- Thinking in Digital Systems
- C# Programming
- The Agile development mentality

## ASSESSMENT TASKS

Students must satisfactorily complete a set number of assessment activities to meet the requirements of each unit. To progress to the next trimester of study, you must have completed all prerequisite units.

Assessments are due on the day of unit class except where otherwise notified by your lecturer. Assessment submission via Moodle will be available for some assessment events. Late submissions attract a 5% deduction of marks per day up to 5 days after which students will be awarded a fail (0%) for this assessment. Applications for extensions must be made through the Head of Department on the Student Request/Academic form – citing the request for Assessment Extension of Time. These applications must be submitted over the counter at Administration/Reception.

It is your responsibility to present your assignments in an academically professional manner. This includes labelling *all parts of submitted work* with your name, student number and unit name and number. The submission requirements listed in each assessment will give you further information on what is required for that particular assessment event.

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### 1. Prototype Tutorial

Due: Week 3

Submission: Moodle

Weighting: 20%

Learning Outcomes: a, b, c, d, e, f, g, h, i, j

#### Description:

Complete a guided tutorial on rapid prototyping from set text and include a short report on the process. The report should briefly analyse the rapid prototyping process, and include incremental development steps completed each week in the process of developing the prototype.

This tutorial and analysis is intended to be a learning exercise that will inform the student of the rapid prototyping process to be followed in the subsequent assessments. While following the tutorial, students should consider the development steps that they are following and how they might replicate this process on future prototypes.

**Submission format:**

- PDF document – Short analysis of prototyping process, with chronological report, breaking down the weekly development progression. Should include screen-grabs where appropriate to demonstrate progressive development.
- Playable prototype to be submitted as published game and as project files.

**Criteria:**

- **20%** Weekly progress, as evidenced by submitted documentation
- **20 %** Analysis – understanding of the prototyping process, as evidenced by report
- **60%** Functionality – playable game and degree of completion.

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**2. Prototype Exercises**

Due: Week 10

Submission: Moodle

Weighting: 45%

Learning Outcomes: a, b, c, d, e, f, g, h, i, j

**Description:**

Several small playable game prototypes will be developed over the course of this assessment. Short creative briefs will be set in class, and students must create a playable response to this within the time allocated. These projects are intended to be simple, rapid prototyping exercises with the focus entirely on play-testing basic game play concepts.

**Submission format:**

- Prototypes to be submitted as published game, and as project files.
- PDF document with screen-grabs of the visual scripting nodes used and written explanation.

**Criteria:**

- **40%** Creative response to brief
- **60%** Functionality – playable game and degree of completion.

Successful completion of this task requires that you fulfil all the pass elements in the attached assessment criteria sheet (rubric).

### 3. Scene Prototype

Due: Week 13.

Submission: Moodle

Weighting: 35%

Learning Outcomes: a, b, c, d, e, f, g, h, i, j

#### Description:

Create a completed scene including both graphics and functionality. Students should propose a concept for a short game prototype, and once approved, they will individually create the necessary assets and scripts to create a playable game prototype. The scope of this project must be small and representative of a single scene or event in a possible larger game. The prototype must contain, as a minimum, the following three components: a functional item, an objective to be met, and a challenge to overcome.

Following are some examples of these rules applied to a small scene:

1. The gun turret (**challenge to overcome**) is blocking the exit (**objective**). Destroy the computer controlling the gun turret (**functional item**) in order to deactivate the turret and escape.
2. A number of puzzle pieces (**functional items**) must be positioned in the correct way (**objective**) in order to unlock an exit before the ceiling collapses (**challenge to overcome**).
3. Get the key into your inventory (**functional item**), defeat the monster guarding the door (**challenge to overcome**), open the door (**objective**).

As with the past assessments, the core requirement of this project is to produce game functionality, however this assessment requires the visual aesthetic of a game to be prototyped, i.e., finished, polished art assets are required rather than stand-in prototype assets. This is an important step in showing the look and feel of a finished project. The final scene should give players a clear sense of how a fully development version of this game would look, feel, and play.

#### Project Requirements:

- In-game assets; These should be game-engine appropriate with regards to topology, UV mapping, and texturing. However, note that asset creation should represent a maximum of a quarter of total game prototype development time (as reflected in the 25% weighting for this criterion).
- Game play elements; These are elements within the game prototype that present the player with challenges of some description in order to create enjoyable game play. A pass requires, as a minimum, the three game components: a functional item, an objective to be met, and a challenge to overcome.

#### Submission requirements:

- Published final game playable prototype.
- A single PDF document containing the following:
  - Overview of efforts made in creating the proposed game play functionality. This is especially important in the case of any “glitchy” or incomplete functionality, as the work in progress scripting will indicate student understanding and earn more marks

than simply removing the incomplete scripting attempts, or attempting something other than what was proposed. In summary: show your working.

- All scripts used in-game, with thorough commenting and referencing where appropriate.
- Still images of game assets created, showcasing wired “clay” renders and textures.
- Complete reference list of all assets used.

**Criteria:**

- **30%** Game feel. Overall look and feel, how well game play and visuals have come together to form more than the sum of their parts. Creativity and originality.
- **35%** Functionality. Game concept has been implemented in accordance with proposal. Error free published game. Game runs as the student intended.
- **35%** Graphics. Visual appearance and quality of custom made art assets.

**Successful completion of this task requires that you fulfil all the pass elements in the attached assessment criteria sheet (rubric).**

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## Late Assignments

Assignments are due on the date specified unless authorised by the Head of Department in writing prior to submission date. Assignments may be handed in late with a loss of 5% per day up to 5 days after which a 0% will be awarded.

## References

The referencing style to be used and access to guidance on how to use it is available from the library. JMC Academy uses the Harvard (author-date) system for referencing. For example:

Davie, M. 2008, ‘Sneaky Sound System’ *Audio Technology*. Iss. 60, p. 39

## RECOMMENDED READING

1. Swink, S. 2008. *Game Feel: A Game Designer’s Guide to Virtual Sensation*, CRC Press, Burlington, USA.
2. Watkins, A. 2011. *Creating Games with Unity and Maya*, Focal Press, USA
3. Adams, E. 2006. *Fundamentals of Game Design*, 2nd Edition, Prentice Hall, USA.

## WEB REFERENCES

## LEARNING RESOURCES

This outline, as well as additional subject resources, is available on Moodle.

Url: <http://jmcacademy.mrooms3.net/> Contact your Head of Department/lecturer for the enrolment key for your subjects.

Student support information and policies and procedures are also available on Moodle. The enrolment key for these units is support. If you need help and direction with your studies please see the Library and Student Support Officer who will assist you and get you further help where you need it.

## Plagiarism

Plagiarism is where a student copies all, or a substantial part of the work of another person whether written, printed, electronic or other media, without due acknowledgement, thereby making it appear to be their own thoughts and ideas. Any claims made against a student regarding plagiarism will be investigated.

Where the allegations are upheld, the student will not pass the unit. Any claims made against a student regarding cheating will also be investigated. Where the allegations are upheld, the student will not pass the unit and may be expelled.

## Special needs

Please advise the JMC Academy (prior to each semester starting) of any additional support you may require to successfully study at JMC and speak to the Head of Department about what the assessments demand and whether an adjustment needs to be made for you. You can be confident that all such requests will be treated with discretion.

Where a medical condition or learning disability may impact on your learning, the classroom, or an assessment, JMC administration may need to inform your lecturers so that appropriate measures can be made to make your studies as trouble-free as possible.

## Student Rights and Responsibilities

It is the responsibility of every student to be aware of all relevant legislation and policies and procedures relating to their rights and responsibilities as a student. These include:

- JMC Academy 's policy and statements on plagiarism and academic integrity;
- Copyright principles and responsibilities;
- JMC Academy's policies on appropriate use of software and computer facilities.

## Stakeholder improvement to this unit

Date	Stakeholder	Comments
16/08/14	M. Dickie	Version 3.0 rewritten for 12 week delivery
20/05/15	M. Dickie	Version 4.0 rewritten to increase focus on prototyping