COMP352
Videogames Project
S2 Day 2017
Dept of Computing

Contents

General Information 2
Learning Outcomes 2
Assessment Tasks 3
Delivery and Resources 12
Unit Schedule 12
Learning and Teaching Activities 13
Policies and Procedures 13
Graduate Capabilities 15
Changes from Previous Offering 19
Grading and Passing 19

Disclaimer
Macquarie University has taken all reasonable measures to ensure the information in this publication is accurate and up-to-date. However, the information may change or become out-dated as a result of change in University policies, procedures or rules. The University reserves the right to make changes to any information in this publication without notice. Users of this publication are advised to check the website version of this publication [or the relevant faculty or department] before acting on any information in this publication.
# General Information

<table>
<thead>
<tr>
<th>Unit convenor and teaching staff</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecturer</td>
<td>Malcolm Ryan</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:malcolm.ryan@mq.edu.au">malcolm.ryan@mq.edu.au</a></td>
</tr>
<tr>
<td>Contact via x9512</td>
<td>E6A 325</td>
</tr>
<tr>
<td></td>
<td>Fri 12-1pm</td>
</tr>
<tr>
<td>Tutor</td>
<td>Annabelle Macfarlane</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:annabelle.macfarlane@mq.edu.au">annabelle.macfarlane@mq.edu.au</a></td>
</tr>
<tr>
<td>Credit points</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisites</td>
<td>39cp at 100 level or above including COMP260</td>
</tr>
<tr>
<td>Corequisites</td>
<td>COMP330 or MECO329</td>
</tr>
<tr>
<td>Co-badged status</td>
<td></td>
</tr>
</tbody>
</table>

## Unit description

Students will work in groups to create a videogame using a commercial-level game engine. This will enable them to apply their previously acquired skills in videogame design and implementation to a substantial project. Teams will be expected to develop their own concept for the game. This will require creative design, the production of supporting documentation, quality control, and other associated skills and concepts. Teams will be expected to produce a compelling game proposal and meet regular agreed milestones as well as producing game documentation and giving a final presentation.

# Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at [http://students.mq.edu.au/student_admin/enrolmentguide/academicdates/](http://students.mq.edu.au/student_admin/enrolmentguide/academicdates/)

# Learning Outcomes

1. Be able to apply the agile development process (prototyping and playtesting) to a large scale video game design and development project.
2. Have developed their ability to turn creative ideas in actual products, including the tradeoffs necessary in this process.

3. Understand and be able to make use of the basic principles of project management, teamwork, the roles and responsibilities of the project manager and appreciate the importance of working closely with the project's client and the delivered game's target audience.

4. Have improved their communication skills, both oral and written, in describing and documenting their game design work.

5. Have developed the fundamental skills required for personal reflection and life-long learning.

### Assessment Tasks

<table>
<thead>
<tr>
<th>Name</th>
<th>Weighting</th>
<th>Hurdle</th>
<th>Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elevator Pitch</td>
<td>5%</td>
<td></td>
<td>Week 2</td>
</tr>
<tr>
<td>Pitch</td>
<td>5%</td>
<td></td>
<td>Week 3</td>
</tr>
<tr>
<td>Project Plan</td>
<td>5%</td>
<td></td>
<td>Week 4</td>
</tr>
<tr>
<td>Milestone 1</td>
<td>4%</td>
<td></td>
<td>Week 5</td>
</tr>
<tr>
<td>Milestone 2</td>
<td>4%</td>
<td></td>
<td>Week 7</td>
</tr>
<tr>
<td>Milestone 3</td>
<td>4%</td>
<td></td>
<td>Week 8</td>
</tr>
<tr>
<td>Milestone 4</td>
<td>4%</td>
<td></td>
<td>Week 10</td>
</tr>
<tr>
<td>Milestone 5</td>
<td>4%</td>
<td></td>
<td>Week 12</td>
</tr>
<tr>
<td>Milestone 6</td>
<td>5%</td>
<td></td>
<td>Week 13</td>
</tr>
<tr>
<td>Complete game</td>
<td>10%</td>
<td></td>
<td>Week 13</td>
</tr>
<tr>
<td>Design document</td>
<td>15%</td>
<td></td>
<td>Week 13</td>
</tr>
<tr>
<td>Playtesting report</td>
<td>15%</td>
<td></td>
<td>Week 13</td>
</tr>
<tr>
<td>Post-mortem</td>
<td>20%</td>
<td></td>
<td>Week 13</td>
</tr>
</tbody>
</table>

**Elevator Pitch**

*Due: Week 2*

*Weighting: 5%*
A two-minute pitch of a game idea to class.

**Rubric:**

A (100). Outstanding. An original and creative idea clearly and concisely pitched, through words and images. B (80). Very Good. A good idea, clearly communicated. C (60). Fair. An idea is presented but there is a fair amount of vagueness or rambling. D (40) Poor. Major problems with communication. It is hard to tell what is being pitched.

This Assessment Task relates to the following Learning Outcomes:

- Have developed their ability to turn creative ideas into actual products, including the tradeoffs necessary in this process
- Have improved their communication skills, both oral and written, in describing and documenting their game design work.

**Pitch**

**Due:** *Week 3*

**Weighting:** 5%

A pitch of a proposed design to clients. Should include:

1. Design outline
2. Storyboards
3. Art style

All team members are expected to present and will be individually assessed for their contribution.

**Rubric**

A (100). Outstanding. An original and creative idea clearly and concisely pitched, through words and images. B (80). Very Good. A good idea, all components clearly communicated. C (60). Fair. An idea is presented but there is a fair amount of vagueness or rambling. D (40) Poor. Major problems with communication. It is hard to tell what is being pitched.

This Assessment Task relates to the following Learning Outcomes:

- Be able to apply the agile development process (prototyping and playtesting) to a large scale video game design and development project.
- Have improved their communication skills, both oral and written, in describing and documenting their game design work.
Project Plan
Due: Week 4
Weighting: 5%

A written project plan based on feedback from the pitch.

Rubric:

A+. (100) Outstanding. Ambitious and well-researched proposal showing high levels of creativity. A thoughtful plan for working together that seriously addresses problems that might arise and takes ownership of them.
B. (80) Very Good. Clear and specific design goals. A sensible plan for how the team will operate.
C. (70) Good. Clear and specific design goals. A plausible set of proposed mechanics. A sensible plan for how the team will operate.
D. (60) Fair. Some vagueness or omissions in design goals, mechanics, or team plan.
E. (50) Poor. Multiple areas of vagueness in proposed game or team plan.
F. (< 50) Bad. Significant sections unclear or missing.

This Assessment Task relates to the following Learning Outcomes:
- Be able to apply the agile development process (prototyping and playtesting) to a large scale video game design and development project.
- Understand and be able to make use of the basic principles of project management, teamwork, the roles and responsibilities of the project manager and appreciate the importance of working closely with the project's client and the delivered game's target audience.

Milestone 1
Due: Week 5
Weighting: 4%

A prototype and progress report based on agreed milestone targets. Individual team members will be assessed based on their activity on the project.

Assessment will be based on both a group Milestone report and on individual peer-assessment.

Rubric:

Group Report

A+ (100) Outstanding. Team exhibits a high level of professionalism in their work, allocating work and getting it done efficiently. Measures are taken to actively pursue high-quality workflow.
A. (90) Excellent. Team are maintaining strong progress, keeping ahead of schedule.
B. (80) Very Good. Tasks are being well allocated and significant progress has been achieved. Problems are
being addressed and followed-up from earlier sprints. C. (70) Good. Tasks are sensibly allocated and mostly being achieved. The group is making progress towards its goal. Problems are being recognised and addressed. D. (60) Fair. Task allocation is patchy, team members have too much or too little work, or duties are vague. Progress is being made, but lacks coordination. Problems are acknowledged but not being addressed. E. (50) Poor. Task allocation is unclear. Progress is limited. Problems are not being recognised. F. (<50) Bad. Ongoing failure to make progress or address major problems.

Peer Assessment:

A+ (100) Outstanding. The team member went well beyond the call of duty to produce remarkable results. A. (90) Excellent. The team member put in extra effort to produce high quality results. B. (80) Very Good. The team member did the work they were expected to, with high quality results. C. (70) Good. The team member did all the work they were expected to, with good quality results. D. (60) Fair. The team member did most of the work they were expected to, with mixed results. E. (50) Poor. The team member did not put in much effort, left significant pieces of work unfinished or unusable F. (<50) Bad. The team member did little or no work, or actively hindered the group from making progress.

This Assessment Task relates to the following Learning Outcomes:

- Be able to apply the agile development process (prototyping and playtesting) to a large scale video game design and development project.
- Have developed their ability to turn creative ideas into actual products, including the tradeoffs necessary in this process.
- Understand and be able to make use of the basic principles of project management, teamwork, the roles and responsibilities of the project manager and appreciate the importance of working closely with the project's client and the delivered game's target audience.
- Have developed the fundamental skills required for personal reflection and life-long learning.

Milestone 2

Due: Week 7
Weighting: 4%

A prototype and progress report based on agreed milestone targets. Individual team members will be assessed based on their activity on the project.

Rubric: As above

This Assessment Task relates to the following Learning Outcomes:

- Be able to apply the agile development process (prototyping and playtesting) to a large scale video game design and development project.
• Have developed their ability to turn creative ideas in actual products, including the tradeoffs necessary in this process
• Understand and be able to make use of the basic principles of project management, teamwork, the roles and responsibilities of the project manager and appreciate the importance of working closely with the project's client and the delivered game's target audience
• Have developed the fundamental skills required for personal reflection and life-long learning.

**Milestone 3**

**Due:** **Week 8**  
**Weighting:** **4%**

A prototype and progress report based on agreed milestone targets. Individual team members will be assessed based on their activity on the project.

**Rubric:** As above

This Assessment Task relates to the following Learning Outcomes:

• Be able to apply the agile development process (prototyping and playtesting) to a large scale video game design and development project.
• Have developed their ability to turn creative ideas in actual products, including the tradeoffs necessary in this process
• Understand and be able to make use of the basic principles of project management, teamwork, the roles and responsibilities of the project manager and appreciate the importance of working closely with the project's client and the delivered game's target audience
• Have developed the fundamental skills required for personal reflection and life-long learning.

**Milestone 4**

**Due:** **Week 10**  
**Weighting:** **4%**

A prototype and progress report based on agreed milestone targets. Individual team members will be assessed based on their activity on the project.

**Rubric:** As above

This Assessment Task relates to the following Learning Outcomes:
• Be able to apply the agile development process (prototyping and playtesting) to a large scale video game design and development project.
• Have developed their ability to turn creative ideas in actual products, including the tradeoffs necessary in this process
• Understand and be able to make use of the basic principles of project management, teamwork, the roles and responsibilities of the project manager and appreciate the importance of working closely with the project's client and the delivered game's target audience
• Have developed the fundamental skills required for personal reflection and life-long learning.

Milestone 5
Due: **Week 12**
Weighting: 4%

A prototype and progress report based on agreed milestone targets. Individual team members will be assessed based on their activity on the project.

**Rubric:** As above

This Assessment Task relates to the following Learning Outcomes:
• Be able to apply the agile development process (prototyping and playtesting) to a large scale video game design and development project.
• Have developed their ability to turn creative ideas in actual products, including the tradeoffs necessary in this process
• Understand and be able to make use of the basic principles of project management, teamwork, the roles and responsibilities of the project manager and appreciate the importance of working closely with the project's client and the delivered game's target audience
• Have developed the fundamental skills required for personal reflection and life-long learning.

Milestone 6
Due: **Week 13**
Weighting: 5%

A progress report based on agreed milestone targets. Individual team members will be assessed based on their activity on the project.

**Rubric:** As above
This Assessment Task relates to the following Learning Outcomes:

- Be able to apply the agile development process (prototyping and playtesting) to a large scale video game design and development project.
- Have developed their ability to turn creative ideas into actual products, including the tradeoffs necessary in this process.
- Understand and be able to make use of the basic principles of project management, teamwork, the roles and responsibilities of the project manager and appreciate the importance of working closely with the project’s client and the delivered game’s target audience.
- Have developed the fundamental skills required for personal reflection and life-long learning.

**Complete game**

**Due:** **Week 13**

**Weighting:** **10%**

Final game demonstrated to industry sponsors. Mark is determined by sponsors.

**Rubric:**

A+. (100) This is publishable with minor work. A. (90) This is clearly publishable but requires more work. B. (80) This has the potential to be a fun idea but needs considerable development. C. (70) This is competently done, but not worth pursuing. D. (60) This has some major flaws in the design / implementation, but is still recognisably a game. E. (50) This is playable but the design weak to nonexistent. F. (< 50) This is unplayable — reserved for groups that pretty much fail to make something work.

This Assessment Task relates to the following Learning Outcomes:

- Be able to apply the agile development process (prototyping and playtesting) to a large scale video game design and development project.
- Have developed their ability to turn creative ideas into actual products, including the tradeoffs necessary in this process.
- Understand and be able to make use of the basic principles of project management, teamwork, the roles and responsibilities of the project manager and appreciate the importance of working closely with the project’s client and the delivered game’s target audience.
Design document

Due: Week 13
Weighting: 15%

A 2500 word report thoroughly describing of the final game mechanics of the game, justified in terms of the effect they are intended to achieve.

Rubric:


This Assessment Task relates to the following Learning Outcomes:

- Be able to apply the agile development process (prototyping and playtesting) to a large scale video game design and development project.
- Have developed their ability to turn creative ideas in actual products, including the tradeoffs necessary in this process
- Have improved their communication skills, both oral and written, in describing and documenting their game design work.

Playtesting report

Due: Week 13
Weighting: 15%

A 2500 word report describing the playtesting process applied to the game including:

1. The hypotheses being tested
2. The experiment design
3. The results

Rubric

A+. (100) Outstanding. Exemplary in terms of experiment design and thoroughness of analysis, leading to specific design decisions which are re-evaluated over time. A. (90) Excellent. Evidence of a clear program of testing over time, confirming decisions made in previous tests. A/
B testing to compare different solutions to design problems. Intelligent use of appropriate quantitative data. Large samples and appropriate statistical analysis. B. (80) Very Good. Testing that targets specific game features. Clear hypotheses. Appropriate data gathered for to evaluate both behaviour and experience. Thoughtful analysis. Clear identification of how result affected design decisions. C. (70) Good. Testing with general hypotheses. Data gathering is targeted but mostly qualitative -- observations and surveys. Some attempt at analysis which leads to specific design decisions. D. (60) Fair. Testing with general hypotheses. Data is entirely subjective. Weak attempt at analysis, with unsubstantiated design decisions. E. (50) Poor. Testing with vague hypotheses. Data is entirely observation. Little attempt at analysis. Unclear how it affects the design. F. (< 50) Bad. Significant sections unclear or missing

This Assessment Task relates to the following Learning Outcomes:

- Be able to apply the agile development process (prototyping and playtesting) to a large scale video game design and development project.
- Have improved their communication skills, both oral and written, in describing and documenting their game design work.

Post-mortem

Due: Week 13
Weighting: 20%

A 3000 word report reflecting on the project including:

1. What aspects of the final game were successful/unsuccesful
2. What aspects of the group-work process were helpful/unhelpful

Rubric:


This Assessment Task relates to the following Learning Outcomes:

- Understand and be able to make use of the basic principles of project management, teamwork, the roles and responsibilities of the project manager and appreciate the
importance of working closely with the project’s client and the delivered game’s target audience

• Have improved their communication skills, both oral and written, in describing and documenting their game design work.
• Have developed the fundamental skills required for personal reflection and life-long learning.

Delivery and Resources

CLASSES

Classes will only be held in the weeks scheduled below. The lecturer will be available for consultation in the other weeks if desired.

REQUIRED AND RECOMMENDED TEXTS AND/OR MATERIALS

There is no prescribed text for this unit. However we recommend:


UNIT WEBPAGE

Please login to ilearn http://ilearn.mq.edu.au/

TECHNOLOGIES USED AND REQUIRED

The technology you use will depend on your project’s needs. You will have access to the games lab computers and the software on them. Extra software required may be added if a good case can be made for it. You may also want to use resources that your sponsor and team members have access to. Your technology needs will be determined and defined by you in your project plan.

Unit Schedule

<table>
<thead>
<tr>
<th>WEEK</th>
<th>TOPIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Agile project management for game development</td>
</tr>
<tr>
<td>2</td>
<td>Elevator pitches</td>
</tr>
<tr>
<td>3</td>
<td>Pitches to industry sponsors</td>
</tr>
<tr>
<td>4</td>
<td>No class</td>
</tr>
<tr>
<td>5</td>
<td>Milestone 1 demonstrations</td>
</tr>
<tr>
<td>6</td>
<td>No class</td>
</tr>
</tbody>
</table>
Learning and Teaching Activities

Learning and Teaching Strategies
COMP352 is taught through the involvement in a group project. Much of what is learnt is gained through experience and problem solving at the individual and group level. The unit will require the student to apply knowledge and skills gained in previous units and also require the student to acquire new knowledge and skills which will vary for each student and project according to the problem needing to be solved. The content of the unit includes: Preparation of a detailed project proposal and plan. Undertaking an extended group project. Preparation of intermediate and final project deliverables. Preparation of a final reflective report. A group project presentation.

Learning and Teaching Tips
To be successful you should: Meet with your group regularly, ideally weekly. Make sure you take notes, set agendas and action items and at the start of each meeting check the status of all action items. Attend the compulsory class sessions. Read appropriate material to support the technical and management aspects of your project. Perform the tasks assigned to you. Undertake self-study to acquire missing knowledge and skills needed for your particular project. Continually review and revise your project plan and ensure you are working to meet delivery of milestones by the specified time.

Policies and Procedures
Macquarie University policies and procedures are accessible from Policy Central. Students should be aware of the following policies in particular with regard to Learning and Teaching:

Academic Honesty Policy http://mq.edu.au/policy/docs/academic_honesty/policy.html
Complaint Management Procedure for Students and Members of the Public

Disruption to Studies Policy (in effect until Dec 4th, 2017):

Special Consideration Policy (in effect from Dec 4th, 2017):

In addition, a number of other policies can be found in the Learning and Teaching Category of Policy Central.

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct:
https://students.mq.edu.au/support/student_conduct/

Results

Results shown in iLearn, or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in eStudent. For more information visit ask.mq.edu.au.

Special consideration policy of the Department of Computing:
http://comp.mq.edu.au/undergrad/policies/special_consideration_policy.htm

Plagiarism

Please refer to the Department of Computing Plagiarism Policy for the definition of plagiarism, advice on avoiding it and the penalties in place if you are found to have submitted plagiarised work.

Student Support

Macquarie University provides a range of support services for students. For details, visit http://students.mq.edu.au/support/

Learning Skills

Learning Skills (mq.edu.au/learningskills) provides academic writing resources and study strategies to improve your marks and take control of your study.

• Workshops
• StudyWise
• Academic Integrity Module for Students
• Ask a Learning Adviser

Student Enquiry Service

For all student enquiries, visit Student Connect at ask.mq.edu.au
Equity Support
Students with a disability are encouraged to contact the Disability Service who can provide appropriate help with any issues that arise during their studies.

IT Help
For help with University computer systems and technology, visit http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/.
When using the University's IT, you must adhere to the Acceptable Use of IT Resources Policy. The policy applies to all who connect to the MQ network including students.

Graduate Capabilities

Discipline Specific Knowledge and Skills
Our graduates will take with them the intellectual development, depth and breadth of knowledge, scholarly understanding, and specific subject content in their chosen fields to make them competent and confident in their subject or profession. They will be able to demonstrate, where relevant, professional technical competence and meet professional standards. They will be able to articulate the structure of knowledge of their discipline, be able to adapt discipline-specific knowledge to novel situations, and be able to contribute from their discipline to inter-disciplinary solutions to problems.

This graduate capability is supported by:

Learning outcomes

- Be able to apply the agile development process (prototyping and playtesting) to a large scale video game design and development project.
- Have developed their ability to turn creative ideas in actual products, including the tradeoffs necessary in this process

Assessment tasks

- Elevator Pitch
- Pitch
- Project Plan
- Milestone 1
- Milestone 2
- Milestone 3
- Milestone 4
- Milestone 5
- Milestone 6
- Complete game
Problem Solving and Research Capability

Our graduates should be capable of researching; of analysing, and interpreting and assessing data and information in various forms; of drawing connections across fields of knowledge; and they should be able to relate their knowledge to complex situations at work or in the world, in order to diagnose and solve problems. We want them to have the confidence to take the initiative in doing so, within an awareness of their own limitations.

This graduate capability is supported by:

**Learning outcomes**

- Be able to apply the agile development process (prototyping and playtesting) to a large scale video game design and development project.
- Have developed their ability to turn creative ideas in actual products, including the tradeoffs necessary in this process

**Assessment tasks**

- Elevator Pitch
- Pitch
- Project Plan
- Milestone 1
- Milestone 2
- Milestone 3
- Milestone 4
- Milestone 5
- Milestone 6
- Complete game
- Design document
- Playtesting report

Creative and Innovative

Our graduates will also be capable of creative thinking and of creating knowledge. They will be imaginative and open to experience and capable of innovation at work and in the community. We want them to be engaged in applying their critical, creative thinking.

This graduate capability is supported by:
Learning outcomes

• Be able to apply the agile development process (prototyping and playtesting) to a large scale video game design and development project.
• Have developed their ability to turn creative ideas in actual products, including the tradeoffs necessary in this process

Assessment tasks

• Elevator Pitch
• Pitch
• Project Plan
• Milestone 1
• Milestone 2
• Milestone 3
• Milestone 4
• Milestone 5
• Milestone 6
• Complete game
• Design document
• Playtesting report

Effective Communication

We want to develop in our students the ability to communicate and convey their views in forms effective with different audiences. We want our graduates to take with them the capability to read, listen, question, gather and evaluate information resources in a variety of formats, assess, write clearly, speak effectively, and to use visual communication and communication technologies as appropriate.

This graduate capability is supported by:

Learning outcome

• Have improved their communication skills, both oral and written, in describing and documenting their game design work.

Assessment tasks

• Elevator Pitch
• Pitch
• Design document
• Playtesting report
• Post-mortem
Capable of Professional and Personal Judgement and Initiative

We want our graduates to have emotional intelligence and sound interpersonal skills and to demonstrate discernment and common sense in their professional and personal judgement. They will exercise initiative as needed. They will be capable of risk assessment, and be able to handle ambiguity and complexity, enabling them to be adaptable in diverse and changing environments.

This graduate capability is supported by:

**Learning outcomes**

- Understand and be able to make use of the basic principles of project management, teamwork, the roles and responsibilities of the project manager and appreciate the importance of working closely with the project's client and the delivered game's target audience.
- Have developed the fundamental skills required for personal reflection and life-long learning.

**Assessment tasks**

- Project Plan
- Milestone 1
- Milestone 2
- Milestone 3
- Milestone 4
- Milestone 5
- Milestone 6
- Complete game
- Post-mortem

**Commitment to Continuous Learning**

Our graduates will have enquiring minds and a literate curiosity which will lead them to pursue knowledge for its own sake. They will continue to pursue learning in their careers and as they participate in the world. They will be capable of reflecting on their experiences and relationships with others and the environment, learning from them, and growing - personally, professionally and socially.

This graduate capability is supported by:

**Learning outcome**

- Have developed the fundamental skills required for personal reflection and life-long learning.
Assessment tasks

- Milestone 1
- Milestone 2
- Milestone 3
- Milestone 4
- Milestone 5
- Milestone 6
- Post-mortem

Changes from Previous Offering

And additional milestone has been added to record work done on the final submission and report writing, worth 5%. (The value of the Project Plan was reduced by 5% to balance.)

Grading and Passing

The final mark for the unit will be calculated by combining the marks for all assessment tasks according to the percentage weightings shown in the assessment summary.

The group-work component of the assessment (Design overview, Design Document, Playtesting document) will be marked in common for all group members, but individual marks will be modulated based on peer assessment feedback, based on performance in the team.

All work submitted should be readable and presented in a business-like and professional format.

Late work will not be accepted. As you are working in a team and also are expected to perform risk management, sickness or other misadventure needs to be planned for and managed.

Grade Assessment Standards

<table>
<thead>
<tr>
<th>Grade</th>
<th>Summary of required performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>Has participated in group-based projects which delivered satisfactory outputs throughout the semester.</td>
</tr>
<tr>
<td>CR</td>
<td>Has participated in group-based projects throughout the semester which delivered quality outputs.</td>
</tr>
<tr>
<td>D</td>
<td>Has participated in group-based projects throughout the semester which consistently delivered high quality outputs. All the assignment, practical and tutorial tasks (programming and written) completed to a very high standard.</td>
</tr>
</tbody>
</table>
Has participated in group-based projects throughout the semester which consistently delivered high quality outputs. Students achieving this grade are often distinguished by a high level of effort, enthusiasm, competence and often leadership in their project groups.