



MONASH University
Information Technology

FIT4146
Emergent technologies and interfaces

Unit Guide

Semester 2, 2015

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FIT4146 Emergent technologies and interfaces - Semester 2, 2015

This unit will focus on research into the latest developments in the field of information technology, including innovative technology developments involving human computer interaction, information visualisation of complex data and emerging interface techniques. Students will learn valuable research and communication skills as they investigate and share with their peers the impact of emergent technologies and interfaces on society. The content presented in the lectures will focus on grand challenges in the field of information technology and on emerging trends. Students will apply their theoretical understanding to a practical project negotiated with the lecturer using a learning contract.

Mode of Delivery

Caulfield (Day)

Workload Requirements

Minimum total expected workload equals 12 hours per week comprising:

(a.) Contact hours for on-campus students:

- Two hours of lectures
- One 2-hour tutorial

(b.) Additional requirements (all students):

- A minimum of 8 hours independent study per week for completing lab and project work, private study and revision.

See also Unit timetable information

Unit Relationships

Prohibitions

FIT3146

Prerequisites

24 points of level 4 or 9 FIT units

Chief Examiner

Dr Michael Morgan

Campus Lecturer

Caulfield

Dr Michael Morgan

Matthew Butler

Tutors

Caulfield

Michael Morgan

Matthew Butler

Rick Laird

Your feedback to Us

Monash is committed to excellence in education and regularly seeks feedback from students, employers and staff. One of the key formal ways students have to provide feedback is through the Student Evaluation of Teaching and Units (SETU) survey. The University's student evaluation policy requires that every unit is evaluated each year. Students are strongly encouraged to complete the surveys. The feedback is anonymous and provides the Faculty with evidence of aspects that students are satisfied and areas for improvement.

For more information on Monash's educational strategy, see:

www.monash.edu.au/about/monash-directions/ and on student evaluations, see:
www.policy.monash.edu/policy-bank/academic/education/quality/student-evaluation-policy.html

Previous Student Evaluations of this Unit

The content and assessment was revised substantially in 2014 to place a heavier focus on the Kickstarter/Maker Community/Entrepreneur aspects of IT. Positive comments regarding this related to:

- Being able to choose areas of interest
- Focus on new and emerging technologies
- Being able to engage with the Kickstarter/Maker Community/Entrepreneur aspects of IT, such as the idea of pitching new projects with new technologies

Comments of concern were also raised, and are being addressed in this offering of the unit. They included:

- A lack of examples, which is being addressed by providing access to anonymised examples from the previous offering.
- Confusion around number of assessment item deliverables. This has been streamlined this offering to make it clearer what needs to be done by when. While it may seem like more assessment tasks, it has simply been broken down into smaller assessment items rather than

having sub components of bigger tasks.

If you wish to view how previous students rated this unit, please go to <https://emuapps.monash.edu.au/unitevaluations/index.jsp>

Academic Overview

Learning Outcomes

At the completion of this unit students will have -A theoretical and conceptual understanding of:

- the diversity of theoretical and conceptual frameworks which contribute to the current developments in the field of information technology, including human computer interaction, information visualisation and interface design;
- the grand challenges in the field of information technology and the emerging trends, including the range of applications to which emerging information technologies, information visualisation techniques and innovative interfaces can be applied, for example ubiquitous computing, geospatial information visualisation and mobile devices interfaces.

Developed attitudes that enable them to:

- critically evaluate the impact of rapid changes in information technology on society and to appreciate the pervasive and expanding range of applications and fields on which information technology is impacting.

Developed the skills to:

- locate and critically evaluate information on current research in the field, for example using electronic library databases, and to synthesise the information they have gathered into a logical and coherent argument;
- communicate results of their investigation to their peers effectively through written and/or oral presentations while correctly acknowledging and referencing source material;
- apply their theoretical understanding to a practical project negotiated with the lecturer using a learning contract.

Demonstrated the teamwork skills necessary to:

- work as a member of a team to present the finding of their research to their peers.

Unit Schedule

Week	Activities	Assessment
0		No formal assessment or activities are undertaken in week 0
1	Introduction and the market place of ideas	
2	Theme 1 - Emerging Interfaces, Interactions and Tangible Interfaces	A1: Patent Application 5% (Friday Week 2)
3	Theme 2 - Prototyping, 3D Printing and the Maker Community	
4	Theme 3 - Social, Ubiquitous and Mobile Computing and 3rd World Solutions	
5	Theme 4 - Data, Analytics and Information Visualisation	
6	Theme 5 - Gaming, Virtual and Augmented Reality Technologies	A2: Survey, Pitch Video & Concept Outline 15% (Friday Week 6)
7	Micro Lecture Theme 1 - Student Venture Capital Presentations and Market Research Activities	A3: Live Pitch Presentation 20% (During Weeks 7 to 11)
8	Micro Lecture Theme 2 - Student Venture Capital Presentations and Market Research Activities	A4: Feedback to Presenters 20% (During Weeks 7 to 11)
9	Micro Lecture Theme 3 - Student Venture Capital Presentations and Market Research Activities	
10	Micro Lecture Theme 4 - Student Venture Capital Presentations and Market Research Activities	
11	Micro Lecture Theme 5 - Student Venture Capital Presentations and Market Research Activities	
12	Summary and IPOs, Demos and Prospectus Launch	A5: IPO, Demo & Prospectus 35% (Friday Week 12)
	SWOT VAC	No formal assessment is undertaken in SWOT VAC. A6: Investment Feedback 5% (Friday Week 14, NOT in Swot Vac)
	Examination period	LINK to Assessment Policy: http://policy.monash.edu.au/policy-bank/academic/education/assessment/assessment-in-coursework-policy.html

*Unit Schedule details will be maintained and communicated to you via your learning system.

Teaching Approach

- **Research activities**

Students are required to research a topic of interest aligned with the specified research themes and share the results of this research with their peers.

- **Problem-based learning**

Students are encouraged to take responsibility for organising and directing their learning with support from their supervisors.

Assessment Summary

In-semester assessment: 100%

Assessment Task	Value	Due Date
Patent Application	5%	Friday 3pm of Week 2
Online Feedback Survey with Embedded Pitch Video and Concept Outline	15%	Friday 3pm of Week 6
Live Pitch Presentation	20%	Live pitches to class occur in class during weeks 7 to 11
Feedback to Presenters in class and via online surveys	20%	Feedback activity will take place during weeks 7 to 11
Initial Public Offering (IPO), Demo and Prospectus	35%	Friday 3pm of Week 12
Investing in IPO projects and Feedback	5%	Friday 3pm of Week 14

Assessment Requirements

Assessment Policy

Faculty Policy - Unit Assessment Hurdles

(<http://intranet.monash.edu.au/infotech/resources/staff/edgov/policies/assessment-examinations/assessment-hurdles>)

Academic Integrity - Please see resources and tutorials at

<http://www.monash.edu/library/skills/resources/tutorials/academic-integrity/>

Assessment Tasks

Participation

- **Assessment task 1**

Title:

Patent Application

Description:

The Patent Application is designed for you to outline your main project concept and the technologies involved.

You should describe the project idea, what the key technologies are, and also explain why you think the concept is innovative and unique. You may use a diagram to illustrate the idea. Patent Applications will be assessed in the order that they are submitted. Groups with a Patent Applications that is assessed as not being original or that overlaps with an existing Patent Application that has been granted to another group will be required to resubmit a revised Patent Application. Groups must have an approved Patent Application before they can submit the following assessment items.

This assessment relates directly to Learning Outcome 1, 2 & 4 of the unit.

Please Note: For students undertaking FIT4146, a more ambitious and well researched project will be expected. This should be reflected in your patent application as well as the subsequent assessment items.

Weighting:

5%

Criteria for assessment:

- ◆ Quality of the description of the concept (2)
- ◆ Originality and technical innovation of the concept (3)

Due date:

Friday 3pm of Week 2

- **Assessment task 2**

Title:

Online Feedback Survey with Embedded Pitch Video and Concept Outline

Description:

In this assessment task, you are to create an online survey, such as those that can be created using Google Forms, that will be available for your peers to complete for 24 hour period when you pitch your concept to the class. This survey is designed for you to obtain

Assessment Requirements

feedback about your proposed project idea that you can incorporate into your final IPO documentation. It is comprised of three components:

Online Feedback Survey (5 %) An online survey.

Teams will design the survey questions to collect useful information about the concept presented and will embed a short Pitch Video and a Concept outline to help describe the concept. This information will form the basis for the following assessment tasks.

Teams will liaise with the lecturer in sufficient time before their presentation to ensure that the online survey is functioning and available to the audience at the time of the presentation. Several questions will be mandatory for each survey as specified by the lecturer.

Pitch Video (5 %) A 1-2 minute pitch video.

Develop a 1 to 2 minute high impact video, which will introduce your concept to a potential audience. Outline the nature of the concept, the need or problem it is addressing, the technologies underpinning the concept and the likely impact of the concept.

Concept Outline (5 %) – A 3 page document.

Create a 3 page Concept Outline detailing the nature of the project, the innovative aspects, the technical basics and the potential benefit.

This document will describe the concept in greater detail and will focus on the innovative aspects of the project, its attraction to potential users, the basics of the underlying technologies involved, the feasibility of the product or service and the potential benefits. Teams should also outline the potential impact of the product or service in terms of: the potential market; the importance of the product or service to the user; and any social benefits to the wider society, such as its sustainability or service to a specific equity group such as 3rd world users.

This assessment relates directly to Learning Outcome 1, 2 & 3 of the unit.

Weighting:

15%

Criteria for assessment:

Online Market Feedback Survey (5 %)

- ◆ Quality of questions to explore the market potential for the product (2)
- ◆ The quality of the questions to gather information to help refine the concept (2)
- ◆ The formatting and layout of the survey (1)

Pitch Video (5 %)

- ◆ Impact and innovation of the video presentation (3)
- ◆ The professional production values of a 1-2 minute video (2)

Concept Outline (5%)

- ◆ Presentation of an original concept with the potential for high market appeal (2)
- ◆ Technical soundness and potential impact of concept (2)
- ◆ The professional formatting and detail of the document (1)

Due date:

Friday 3pm of Week 6

• **Assessment task 3**

Title:

Live Pitch Presentation

Description:

In a team of two, deliver a live pitch in class of an innovative concept for a product or service based on an emerging technology to attract interest and feedback from your peers.

The presentation to pitch your idea may involve:

- ◆ A 6 minute live presentation to the class in total to pitch your idea, (you may use the 1-2 minute pitch video and the material in the concept outline developed for the previous assessment to support your live presentation).
- ◆ A 4 minutes audience question and answer session to explore and test your concept.
- ◆ A 5 minute class activity for the audience to make notes or commence the online survey you have constructed for the previous assessment.

The aim is to have a concise and high impact presentation of the idea in order to attract interest and investment from the audience. Groups are encouraged to use graphics and animations to illustrate the concept to the audience. Groups are also encouraged to practice their presentation in order to script the content, to refine their presentation technique and to achieve maximum impact in the time available. The time period allowed for the presentation component, 15 minutes, will be strictly enforced. Presentations will occur in class in weeks 7 to 11 and will be scheduled by theme topic. Both team members must contribute to the presentation.

The presentation will be followed by a four-minute question and answer session that will allow the audience to explore the concept and to clarify issues. Presentation groups should answer audience/investor questions succinctly and accurately.

The final component of the presentation will be five minutes of class time to gain formal feedback from the audience via the survey on the concept. The audience may choose to take down notes during this time or start to fill in the online survey.

This assessment relates directly to Learning Outcome 3 of the unit.

Weighting:

20%

Criteria for assessment:

- ◆ The innovation and potential impact of the proposed project, particularly social or equity impacts (10)
- ◆ Originality and technical innovation of concept (5)
- ◆ The teamwork and presentation skills of the group (5)

Due date:

Live pitches to class occur in class during weeks 7 to 11

• **Assessment task 4**

Title:

Feedback to Presenters in class and via online surveys

Description:

This assessment requires students to participate in class in class to provide questions and feedback on the live pitch presentations and completion of the provided Online Feedback Survey for each group. Marks will be awarded at a rate of 4 marks per week for five weeks for high quality and detailed feedback to the presenters on the quality of their project concepts. Satisfactory completion of an activity will require the completion of all survey questions and feedback fields. This assessment task aims to create a mechanism for providing feedback to project teams on the quality of their project ideas and to assess the potential value of each project.

For each week in weeks 7 to 11 attend class and participate by:

- ◆ Asking questions about specific aspects of the projects that are presented,
- ◆ Provide comments and feedback on how to improve the quality or impact of the project,
- ◆ Make notes or start to complete the online survey in the class time provided (the survey will be open for 24 hours starting from the presentation time).

Each presenting team will provide the lecturers with the user names and data collected from their survey and the quality of these responses will be assessed.

This assessment relates directly to Learning Outcome 2 & 3 of the unit.

Weighting:

20%

Criteria for assessment:

For each week for 5 weeks via the online surveys:

- ◆ Completing all survey fields satisfactorily (2)
- ◆ Detailed responses about the strengths and weakness of each concept (1)
- ◆ Detailed suggestions for improvements for each concept (1)

Due date:

Feedback activity will take place during weeks 7 to 11

• **Assessment task 5**

Title:

Initial Public Offering (IPO), Demo and Prospectus

Description:

In a team of 2 issue a prospectus and demonstration for the IPO of your innovative concept including the following elements:

- ◆ A 3 minute video pitching your revised idea
- ◆ A technical demonstration of the product or service and/or a detailed technical specification for the product or service
- ◆ A 10 page prospectus document

Students will create a three-minute video that presents their revised project idea to potential investors. The video should be a high impact, accurate and concise presentation of the revised project. The presentation should include revised information on the technical feasibility of the project based on the demo or technical specification work, and

Assessment Requirements

revised advice on the user demand and the potential impact of the project based on any marketing or usability research conducted.

Project teams will be required to develop a demonstration or a detailed technical specification of their product or service to illustrate how the concept will work. Depending on the project and theme it may involve coding a demonstration application, modelling and animating a 3D model of a product, animating a detailed process to illustrate a service and the actions of users of that service, or developing the technical specification for software to be developed (for example designing the interface and interactions for a product). Project teams should consult with their lecturer in order to agree on an appropriate scope for this assessment item.

Project teams will be required to produce a Prospectus document that outlines the nature of the project to potential investors. The Prospectus will include:

- ◆ An explanation of why the project is innovative and the problem it is intended to address
- ◆ A brief technical background of the underlying technologies involved and any threats to the feasibility of the project
- ◆ The potential market and audience for the product in order to help investors assess the potential demand for the product or service
- ◆ A report into the information gathered from the in class activity of either the market research or usability research, and a discussion of how this has helped the team refine the initial concept
- ◆ A discussion of the potential impact of the product or service in terms of the importance of it to users, such as to specific sections of the community, any general social benefits to society, and its sustainability.

All the above components should be combined into a single zip file for submission.

This assessment relates directly to Learning Outcome 1, 2 & 4 of the unit.

Please Note: For all students undertaking FIT4146, a higher level of background research for the project and analysis of survey data will be expected to be demonstrated.

Weighting:

35%

Criteria for assessment:

- ◆ Quality and professionalism of 3 minute video pitching your revised idea or demo of concept (10)
- ◆ Professional presentation and detail of prospectus document (5)
- ◆ Innovation and technical excellence of demonstration or technical specification (10)
- ◆ Potential social impact, market and profitability (5)
- ◆ Market research or Usability research results (5)

Due date:

Friday 3pm of Week 12

• **Assessment task 6**

Title:

Investing in IPO projects and Feedback

Description:

Assessment Requirements

At the end of semester in week 12, students will present project concepts as an IPO (video presentation, demo and prospectus) to attract investment in their project. The lecturers will load this material into online surveys, which will allow students to provide feedback and invest virtual funds for their five best projects. For each project students will be granted virtual investment funds to buy shares, i.e. number of projects 5×1000 virtual shares. Students must invest their shares in a minimum of 5 projects. Students will be asked to fill out an online form to allocate their virtual shares and to justify their investment decisions for each project. By investing in at least 5 IPO projects and submitting feedback comments students will receive five marks.

In order to increase the incentive to carefully consider your investment decisions the 3 top teams at the end of the semester will have the opportunity to pitch their idea to the SensiLab Director to gain approval to work with the SensiLab research group to further develop their concept.

This assessment relates directly to Learning Outcome 2 & 3 of the unit.

Weighting:

5%

Criteria for assessment:

For each of 5 projects via the online surveys:

- ◆ Completing all survey fields satisfactorily (1)

Due date:

Friday 3pm of Week 14

Learning resources

Monash Library Unit Reading List (if applicable to the unit)

<http://readinglists.lib.monash.edu/index.html>

Feedback to you

Types of feedback you can expect to receive in this unit are:

- Informal feedback on progress in labs/tutes
- Graded assignments with comments
- Other: Peer assessment of presentations.

Extensions and penalties

Submission must be made by the due date otherwise penalties will be enforced.

You must negotiate any extensions formally with your campus unit leader via the in-semester special consideration process: <http://www.monash.edu.au/exams/special-consideration.html>

Returning assignments

Students can expect assignments to be returned within two weeks of the submission date or after receipt, whichever is later.

Assignment submission

It is a University requirement

(<http://www.policy.monash.edu/policy-bank/academic/education/conduct/student-academic-integrity-managing-pla>) for students to submit an assignment coversheet for each assessment item. Faculty Assignment coversheets can be found at <http://www.infotech.monash.edu.au/resources/student/forms/>. Please check with your Lecturer on the submission method for your assignment coversheet (e.g. attach a file to the online assignment submission, hand-in a hard copy, or use an electronic submission). Please note that it is your responsibility to retain copies of your assessments.

Online submission

If Electronic Submission has been approved for your unit, please submit your work via the learning system for this unit, which you can access via links in the my.monash portal.

Other Information

Policies

Monash has educational policies, procedures and guidelines, which are designed to ensure that staff and students are aware of the University's academic standards, and to provide advice on how they might uphold them. You can find Monash's Education Policies at:

www.policy.monash.edu.au/policy-bank/academic/education/index.html

Faculty resources and policies

Important student resources including Faculty policies are located at

<http://intranet.monash.edu.au/infotech/resources/students/>

Graduate Attributes Policy

<http://www.policy.monash.edu/policy-bank/academic/education/management/monash-graduate-attributes-policy.h>

Student Charter

www.opq.monash.edu.au/ep/student-charter/monash-university-student-charter.html

Student services

The University provides many different kinds of support services for you. Contact your tutor if you need advice and see the range of services available at <http://www.monash.edu.au/students>. For Malaysia see <http://www.monash.edu.my/Student-services>, and for South Africa see <http://www.monash.ac.za/current/>.

Monash University Library

The Monash University Library provides a range of services, resources and programs that enable you to save time and be more effective in your learning and research. Go to www.lib.monash.edu.au or the library tab in [my.monash](#) portal for more information. At Malaysia, visit the Library and Learning Commons at <http://www.lib.monash.edu.my/>. At South Africa visit <http://www.lib.monash.ac.za/>.

Disability Liaison Unit

Students who have a disability or medical condition are welcome to contact the Disability Liaison Unit to discuss academic support services. Disability Liaison Officers (DLOs) visit all Victorian campuses on a regular basis.

- Website: <http://www.monash.edu/equity-diversity/disability/index.html>
- Telephone: 03 9905 5704 to book an appointment with a DLO; or contact the Student Advisor, Student Community Services at 03 55146018 at Malaysia
- Email: dlu@monash.edu
- Drop In: Equity and Diversity Centre, Level 1, Building 55, Clayton Campus, or Student Community Services Department, Level 2, Building 2, Monash University, Malaysia Campus