



The University of Sydney

Unit of Study INFO5990

Professional Practice in IT

6 Credit Points

Course Outline & Assessment Details

Semester 2, 2020

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INFO5990 Professional Practice in IT

Unit of Study Outline

1. Introduction

This Unit of Study introduces the students to some of the concepts, standards and techniques associated with the current professional practice in information technology in the business environment.

Students will encounter a range of concepts, techniques and professional issues including interpersonal and organisational communication, human resources and conflict resolution, globalisation, professional ethics, social impacts of IT, data security, data quality assurance, system audit and project management concepts and tools. Practical and real world case studies will be used as part of the learning to enhance the in-class teachings to the needs of industry.

2. Learning outcomes

By the end of this course, students should develop the following skills:

Professional Conduct, Communication & Teamwork

1. Have developed awareness and skills relating to written and oral communication vital for professional IT practitioners. Be aware of wider issues and problems concerning professional practice in IT.
2. Be aware of the impact of information technology in our globalised world.
3. Be aware of and have gained skills in aspects of professional practice including conflict resolution, contract negotiation, team formation, leadership and team dynamics.
4. Appreciate issues relating to ethics and professional responsibility in the IT profession and be able to resolve hypothetical ethical dilemmas.
5. Understand aspects of intellectual property and its protection.
6. Be able to discuss current trends in human resource management in the IT industry.
7. Appreciate issues concerning software testing, data security, data quality, quality assurance, system audit and the value of information for decision support systems.
8. Gain an understanding of the use of IT in different industries

Project Management

9. Have developed understanding and skills relating to tools and techniques used in project management.

For further details of course goals related to these learning outcomes, see online unit outline at <http://cusp.eng.usyd.edu.au/students/view-unit-page/alpha/INFO5990>.

3. Class and tutorial locations

Lectures:

- Week 1-13 : 7pm-9pm

Tutorials:

- Weeks 2-13: PRACS – 6pm-7pm

4. Assessment Package

Assessment	Assessment component	Weight	Due Date	Outcomes Assessed
1	Individual Quiz 1 - Online	10%	Week 6	1-6
2	Individual Quiz 2 - online	10%	Week 13	1-12
3	Group Assignment	20%	Week 10	1-10
4	Group Oral presentation	10%	Weeks 11 - 12	1-10
5	Final Exam	50%	Exam Period	1-12

Students need to obtain a minimum of 40% from assessment 1-4 and also the exam to pass the course.

Although teamwork is encouraged during this course, all assessment tasks, except the project proposal / assignment, the group exercises are to be carried out individually (see later section on Academic Honesty). Group Assignment is submitted electronically, but a Team Compliance declaration must be handed in separately.

In assessing a piece of submitted work, the School of IT may reproduce it entirely, may provide a copy to another member of faculty, and/or to an external plagiarism checking service or in-house computer program and may also retain a copy of the assignment for future checking purposes and/or allow an external service to do so.

See University Policy relating to Academic Honesty and Plagiarism in Section 10 below.

5. Attributes developed

Attribute Development Method	Attribute Developed
Students will be able to learn about IT Project Management, Information Quality, Information Quality Assurance and Information Audit.	Engineering/IT Specialisation (Level 2)
Students will explore an issue relating to professional practice in IT to produce a piece of writing of professional standard.	Information Seeking (Level 4)

Lectures will be delivered with the intention of eliciting discussion and debate of crucial issues. During tutorial students will work in teams to tackle hypothetical problems relating to professional practice in IT. They will communicate their findings to colleagues.	Communication (Level 4)
In the group Assignment students will practice skills learned during the course. They should be conscious of issues such as team formation, conflict management, negotiation skills, project management and communication skills which are widely recognised as desirable for professionals in IT.	Professional Conduct & Teamwork (Level 4)

6. Commitment

Students are expected to attend all lectures (2 hours per week), all tutorials (1 hour per week) and to undertake up to 9-10 hours of individual reading, practice and study (1.5 to 2 hours per credit point).

7. Details of Assessment Components

7.1 *Quiz 1: multiple choice from topics based on week 1- Week 6 – 10%*

Due week 6 – see schedule below and LMS / CLASS LECTURE FOR UPDATES

Selection of multiple choice and true/false questions to be completed in 1 hour – up to 60 questions will test students' knowledge of topics discussed in weeks 1-6 in class

7.2 *Quiz 2: multiple choice from topics based on week 1 - Week 13– 10%*

Due week 13 – see schedule below and LMS / CLASS LECTURE FOR UPDATES

Selection of multiple choice and true/false questions to be completed in 1 hour – up to 70 questions will test students' knowledge of topics discussed in weeks 1-12 in class

7.3 *Group Project and Oral presentation*

The group project contributes 30% towards your final grade. Only one copy of the Assignment is to be submitted per team. Normally all members of the team will score the same mark.

Real life Scenario: In teams, explore an emerging technology of choice. You are to present to Jack Ma or another investor who may invest in your business idea. Identify the market differentiator, and size of market / opportunity, value, etc. The new service proposed will include a technology solution, business rationale, and implementation/timeline approach with appropriate risks identified and financial cost vs benefit analysis. Then in your teams you need to conduct a high level financial cost-benefit analysis and benefit to your selected client and their customers. You are to use the content of this course to help with the proposal. Use can use the Lean Canvas to help design the solution. See at the back of the outline.

The project report details:

Length: Maximum 2000 words \pm 10% (that is 9-10 pages)

Reports above this word count attract loss of marks of 10% for every 100 above allowed limit

Strictly No more than 3 Appendix allowed – loss of marks of 10% for every additional appendix
Appendix and executive summary exclusive of word count.

Submission via Blackboard/LMS as per due date to be advised.

Submission on Blackboard and named as “Teamname_assignment2.doc”

There are two elements of this exercise:

- 1. The group project report – mark 20%*
- 2. Group oral presentation – mark 10 %*

Teams of up to 5-6 students MAXIMUM will form a project team during week 2.

This is a formal report and all Formal report procedures and format is to be followed as advised above.

The assignment will be based on a real world IT project as above or from the student's that brings to light the fundamentals of the course. The report will be similar to what an IT investment proposal/review would normally be in a typically corporation which includes the following aspects:

1. Project executive summary
2. Current project audit / performance review / replacement
3. Project justification - business/operational/revenue/user benefits/stakeholders benefits etc.
4. Appropriate “Research Methods” used in the findings would be required
5. Project costing & high level revenue over 3 years / budgeting for tasks to be carried out / in-house resource and outsourced resources, etc.

6. Project Plan (including resources, timeline, and work breakdown structure) using MS Project, etc.
7. Recommendations / conclusions / next steps

Assessment

See Marking guide

7.3.1. Oral Presentation

The final group oral presentations will constitute a grade of 10% towards the final mark. The team will present to class during weeks 11 and 12 in their respective tutorials. Powerpoint slides are encouraged to be used. This will be a summary of your project proposal.

A total of 10 minutes maximum is allowed, at 8 minutes you will be given a gesture to conclude your presentation. Followed by 5/10 minutes of short questions either from the tutor or the class (assume this to be your senior management team/investor who will approve or disapprove your investment proposal).

This is a formal presentation to the executive of your organisation to fund your project. So you will need to develop a proposal that they will fund which highlights business benefits, outcomes, financial aspects, and resource/timelines.

All members of the team are to present and business attire is mandatory.

7.4 Final Examination

Duration 2 hours with 10 minutes reading time.

The final exam will be held during the official exam period, probably on the same usual night of the week. The examination will be CLOSED BOOK.

Simple hand held calculators will be permitted.

8. Supplementary Materials

In a course such as INFO5990 students come with a wide diversity of skills and experience. In recognition of this, a selection of supplementary materials is available on the course website and Blackboard based on the week for those students who need them. Materials include supplementary readings, theoretical exercises, and practical exercises.

You are encouraged to explore these materials and make use of those that are appropriate. You will find it convenient to use your School of Information Technologies login and server space.

9. School of Information Technologies Login

As a student in the School of Information Technologies you will be assigned a login and server space. This will enable you to login to computers in each of the computer laboratories on Level 1

in the School of Technologies Building (J12). Your SIT login usually has the same as your official Unikey.

Students are often confused by the fact that their School of IT login takes the same form as their Unikey, but it provides quite different access and may, if you choose, have a different password. The password for your SIT account is set initially to your student Id. You can change either password as you choose.

When using labs in the School of IT your need to use your SIT login.

1. Login using your SIT identifier.

Open *Windows Explorer* (*Microsoft Flag + E*, or the icon on the tool bar bottom left) and note the contents of your School of Information Technologies home directory. We will refer in future to this location as your U: drive. It can only be accessed within the School of IT.

2. You will find it helpful to keep your work for this course separate from other units, and to organise each week's work in suitably named folders.

Create a new folder (directory) on your U: drive called *INFO5990*. Add to it three subfolders named *Week01*, *Week02* and *Week03* respectively. During this course always store your work in an appropriate folder. Create further folders as required, such as *Week04*, *Week05* etc. as required.

3. Again use Windows Explorer (Flag + E) to view the contents of your U: drive.

10. University Policy on Academic Honesty and Plagiarism

The Faculty of Engineering and Information Technologies views all forms of academic dishonesty, including plagiarism and recycling, very seriously. The University wide policy on academic honesty is set out below.¹

Plagiarism means presenting another person's ideas, findings or work as one's own by copying or reproducing them without due acknowledgement of the source.

Recycling means the submission for assessment of one's own work, or of work which is substantially the same, which has previously been counted towards the satisfactory completion of another unit of study, and credited towards a university degree, and where the examiner has not been informed that the student has already received credit for that work.

Students who submit work containing significant portions that have been copied from other sources, including published works, the internet, existing programs, work previously submitted for other awards or assessments, or the work of other students, without proper acknowledgement will be penalised. Decisions as to the penalty may include:

¹ Refer to University policy Academic Honesty in Coursework (plagiarism):
<http://sydney.edu.au/library/elearning/learn/plagiarism/index.php>

- counselling the student;
- issuing a written warning;
- requiring the student to resubmit the work for assessment; or to undertake other remedial work;
- requiring the student to undertake another form of assessment in lieu of the assignment in question, such as an unseen examination;
- applying a fail grade to the work, or part thereof, submitted for assessment;
- applying a fail grade overall in the unit of study; or
- Referring the matter to the Registrar if the head of school considers there has been a breach of the University's standards of academic honesty and the student continues in a denial, or, following the interview, the head of school considers that failing the unit of study is insufficient to deal with the matter.

Where there is doubt about which portions of work are contributed by a particular student he/she may be required to demonstrate knowledge of the relevant material by answering oral questions or by undertaking supplementary work, either written or in the laboratory, in order to arrive at the final assessment mark.

11. Lecture, Reading and Assessment Schedule

Week	Topic	Lecture A	Lecture B	Tutorial Exercises / Reading / Assessment
Week 1 25/8	Course Objectives. Managing team work: the challenge of leadership	Course overview: objectives, requirements, expectations, assessment and facilities. Tutor introductions. Lecture and tutorial formats.	The nature of leadership, teams and team work, guidelines for effective team work in IT Case Industry : IT in Education	Make contact your team members Readings: <i>Working in a Team</i> , and <i>Team Development</i>
Week 2 1/9	Managing Human Resources in IT, and Change Management	Sourcing, managing and nurturing human resources in the IT industry	Managing the Human Resource in IT: Case Industry : IT in Telecommunications	Team meeting. Reading: <i>Computer-related injuries</i> and <i>Managing the Human Resource in IT / Case readings</i> Other readings as posted on Canvas FORM TEAMS FOR GROUP ASSIGNMENT IN YOUR TUTORIALS
Week 3 8/9	Information system audit and quality assurance	Aspects of Information system audit and quality assurance	Quality assurance concepts and techniques. Case Industry: IT in Military Communications	Reading: <i>The price of stupidity</i> and <i>Information System Audit and Quality Assurance</i> Other readings as posted on Canvas

Week	Topic	Lecture A	Lecture B	Tutorial Exercises / Reading / Assessment
Week 4 15/9	Ethics, ethical behaviour and professional responsibility Guest Lecture: Professionals Australia	Ethics: frameworks for ethical behaviour	The role of professional bodies: the Australian Computer Society Case Industry: IT in Construction	Reading: <i>Case readings</i> Supplement: Ethics Exercises Finalise group projects Other readings as posted on Canvas
Week 5 22/9	Research Methods	Sourcing primary and secondary data. Appropriate method for selecting target sources.	Analyse data using different methods of interpretation and use in business of key data Case Industry: IT in Banking	Reading: <i>Oral Presentations</i> , Supplement: Other readings as posted on Canvas
28/9 mid term break				

Week	Topic	Lecture A	Lecture B	Tutorial Exercises / Reading / Assessment
Week 6 6/10	Introduction to Project Management in IT Project Estimation / MS Project / Scheduling	IT project management process / Risk Management Project estimation: techniques and tools / Problems of managing IT projects.	The PMBOK and the project management literature Case Industry: IT in Retail Project management tools: an introduction to <i>MS Project</i> . Successful and Unsuccessful project proposals, examples Case Industry: IT in Medical technology	Reading: <i>Achieving a realistic project schedule</i> <i>Case readings</i> Other readings as posted on Canvas Reading: <i>Project Management Tools & Techniques / Case readings</i> Other readings as posted on Canvas Quiz 1 – Assignment Due 1 11/10/20 @ 11.59pm
Week 7 13/10	Project Estimation / MS Project / Scheduling	Project estimation: techniques and tools / Problems of managing IT projects.	Project management tools: an introduction to <i>MS Project</i> . Successful and Unsuccessful project proposals, examples	Reading: <i>Project Management Tools & Techniques / Case readings</i> Other readings as posted on Canvas
Week 8 20/10	Managing Software Testing	Software testing - how much is enough? Designing test cases and test suites.	System testing, the V-model. Software usability and the user interface. Case Industry: IT in Aviation	Reading: <i>Case readings</i> Supplement: Software testing Exercises Other readings as posted on Canvas

Week	Topic	Lecture A	Lecture B	Tutorial Exercises / Reading / Assessment
Week 9 27/10	Managing, protecting and systems integration	Managing testing in large scale software systems	Security issues in IT: data security, computer vandalism, viruses, spam, hacking Case Industry: IT in Computer industry	Reading: <i>The Real Cost of a Virus Outbreak / Case readings</i> Other readings as posted on Canvas
Week 10 3/11	Written and Oral Communication in the IT profession	Written communication: effective writing - writing persuasively	Oral communication: oral presentations – speaking convincingly. Importance for IT Professionals Case Industry: IT in Government	Reading: <i>The Art of Good Writing/ Case readings</i> Supplement: Clear As Mud Other readings as posted on Canvas Group Oral due : 9/11/20 @ 11.59pm Assignment 2 Due: 9/11/20/19 @ 11.59pm
Week 11 10/11	Ethics and the IT Profession	Ethical dilemmas in IT and Engineering	Intellectual Property and its protection. Copyright and plagiarism. Case Industry: IT in Research and Development	Reading: <i>Case readings</i> Other readings as posted on Canvas In tutorial group Oral Presentations (1)
Week 12 17/11	Tools and techniques for decision making	Providing quality decision support in your organisation	Effective models for decision making Case Industry: IT in Automotive	Reading: <u>Decision support Systems</u> Other readings as posted on Canvas In tutorial group Oral Presentations (2)

Week	Topic	Lecture A	Lecture B	Tutorial Exercises / Reading / Assessment
Week 13 24/11	Course Review Exam tips	Looking back over the key issues for Professionals in IT	Preparing for the final examination	Revision Sample Examination Paper discussed Quiz 2 – end of week 13 29/11/20 11.59pm

12. Additional Readings / Tutorial discussions

Various peer reviewed articles have been chosen to assist in the learning process and to use during tutorials. As part of the course learning – you need to locate / source each of these articles using the University Library or Electronic search options such as EBSCO, etc.

Week	Article
2	<ul style="list-style-type: none"> Thomas & Fernandez (2008) Success in IT projects: A matter of definition? Nikoloski (2014) The Role of Information Technology in the Business Sector
3	<ul style="list-style-type: none"> Randa (2010) Using IT to drive operational efficiency in the Operating Room Gunasekaran et. al. (2001) A model for investment justification in information technology projects
4	<ul style="list-style-type: none"> Chaudhuri et. al. (2011) An overview of business intelligence Westerlund et. al. (2014) Designing business models for the internet of things
5	<ul style="list-style-type: none"> Yin (1981) The case study crisis: Some answers. Shanks et. al. (2000) Differences in critical success factors in ERP systems implementation in Australia and China: a cultural analysis.
6	<ul style="list-style-type: none"> Gubbi et. al. (2013) Internet of Things (IoT): A vision, architectural elements, and future directions Nuaman et. al. (2005) Information systems development failure: A case study
7	<ul style="list-style-type: none"> Khan, M (2010) Different Forms of testing techniques for finding errors. Cook-Davies (2002) The real success factors on projects
8	<ul style="list-style-type: none"> Slewe & Hoogenboom (2004) Who will rob you on the digital highway Loon (2017) How IoT is changing the world
9	<ul style="list-style-type: none"> Schouten (2012) Five Cloud Business Benefits Dean (2012) Data Centers: where clouds connect
10	<ul style="list-style-type: none"> Eftekharmanavi (2011) Investigating the role of supply chain in electronic commerce Dobre et. Al. (2014) Intelligent services for big data science
11	<ul style="list-style-type: none"> Omar et. al. (2011) Information technology disaster recovery plan: case study Apulu (2011) An evaluation of the impact of information and communication technologies: two case studies examples
12	<ul style="list-style-type: none"> Sherer (2011) Do cultural differences matter in IT implementation? Young & Raymond (2013) Top management support—almost always necessary and sometimes sufficient for success: Findings from a fuzzy set analysis

13. Marking Guide Assignment – Group Proposal

Written report Assessment total marks 20%

Strictly Max 2000 words (Encl Intro/Conclusion) Report Format	Poor (0.2)	Satisfactory (0.4)	Good (0.6)	Very Good (0.8)	Excellent (1.0)	Weight	MARK
Background to the solution / scene setting						2	
Audit of existing system/solution: <ul style="list-style-type: none"> • Tasks performed • Customer perception • Operational aspects • Challenges • etc 						4	
Feasibility of the new solution proposed product/service showing how the solution will work and improve on the current solution. Aspects to consider are : <ul style="list-style-type: none"> • Market size for solution • product revenue/saving • Marketing strategy • Budget: Costs and estimated return including breakeven and 3 year projections/savings 						6	
Implementation strategy including barriers / Risks / Timeline / Milestones						4	
Structure of Plan / Writing style, format, grammar and references (in text citation and bibliography)						4	
TOTAL MARK						20	

TOTAL %						100	
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Comments:

INFO 5990: Group Assignment - Presentation marking guide**In class presentation total marks 10%**

10 minutes + Q&A 10 Marks	Excellent (1.0)	Very Good (0.8)	Satisfactor y (0.4)	Goo d (0.6)	Poor (0.2)	(0.0)	Score
Overview of the project and outline of proposal, business background Mark (2)							
Details of the proposal, as in the proposal report Mark (2)							
Why is this solutions required, compelling argument / pricing Mark (2)							
Timeline / resources / critical elements of project Mark (2)							
Next steps / conclusion / your demand to the investment committee Mark (2)							
Total %							
Total Mark /10							

Available if you google “Lean canvas template”

Lean Canvas		Project Name		01-Jan-2014	
				Iteration #x	
Problem Top 3 problems	Solution Top 3 features	Unique Value Proposition Single, clear, compelling message that states why you are different and worth paying attention	Unfair Advantage Can't be easily copied or bought	Customer Segments Target customers	
	Key Metrics Key activities you measure		Channels Path to customers		
Cost Structure Customer Acquisition costs Distribution costs Hosting People, etc.			Revenue Streams Revenue Model Life Time Value Revenue Gross Margin		
PRODUCT			MARKET		