Course Outline
INFS2603 Systems Analysis & Design
Session 1, 2006

THE UNIVERSITY OF NEW SOUTH WALES
SYDNEY · AUSTRALIA

FACULTY OF COMMERCE AND ECONOMICS

School of Information Systems, Technology and Management

1. Introduction

1.1 Role and Relevance of the Course

Whenever a business information system is developed, selected, purchased or implemented, a Systems Analysis and Design (S A & D) effort is usually undertaken. This could be a small task or a large-scale project. Therefore, INFS2603 Systems Analysis & Design is one of the cornerstone courses in the discipline of Information Systems offered by the School of Information Systems, Technology and Management.

As such, this course will provide you with a foundation that will be used and built upon in other undergraduate courses such as INFS3604 Information Technology Management and INFS3611 Design Workshop.

This foundation course also provides the student with concepts and skills that will be essential in careers such as business systems consultants, system designers, system developers, computer programmers, systems engineers and systems analysts.

1.2 Aims of the Course

The aims of the course include:

- Provide a context or background for the SA&D activity;
- Introduce general systems analysis concepts & principles;
- Acquire skills in *Object-Oriented (O-O)* and *Structured* SA&D;
- Obtain experience in small self-directed work groups applying interpersonal communications, project management and quality assurance skills.

1.3 Learning Outcomes

At the conclusion of the course you should:

1. Understand the business context of SA&D projects.
2. Understand the concepts, principles and terminology of the O-O paradigm.
3. Understand a typical Systems Development Life Cycle (SDLC) and explain the different characteristics of O-O SDLC and structured SDLC.
4. Understand the concepts, principles and terminology of the structured SA&D paradigm.
5. Be able to perform a structured systems analysis & design activity on a small-scale system.
6. Understand some of the issues, benefits and disadvantages of working in small groups.
7. Demonstrate an ability to synthesise ambiguous and incomplete information, and arrive at a decision by applying judgement and commonsense.

1.4 Teaching and Learning Strategies

This course consists of one two hour lecture and one hour tutorial session. The primary vehicle for students to achieve the learning outcomes listed above are lectures and tutorials. Your lecturer will work through short case studies and this will be a unique opportunity for you to observe Systems Analysis and Design techniques put into practice. You also are encouraged to seek clarification by

asking questions during lectures. It is the responsibility of the students to obtain and read all handouts and lecture material.

In general, tutorials provide a *short* recap of the key concepts from lecture and the opportunity for you to apply these concepts to your assignment case study. Your tutor will be available during tutorials to provide guidance with your assignment so that it continues to progress.

In this way, the assignments are considered as both a learning and assessment opportunity.

2. Student Assessment

Course Component	Assessment Element	Percent	Learning Outcomes assessed	Submission Deadline
Course Assessment	Assignment 1 (Group)	25	1,2,3,4,5,6,7	Wk 8
	Assignment 2 (Individual)	15	1,3,4,5,6,7	Wk 13
Final Examination	Final Examination	60	1,2,3,4,5,6,7	Exam period
	Total	100%		

2.1 Criteria to Pass this Course

To receive a pass grade in this course, you must meet ALL of the following criteria:

- Attain an overall mark of at least 50%.
- Attend at least 80% of all scheduled classes.
- Attain a satisfactory performance in each component of the course. A mark of 50% or higher is normally be regarded as satisfactory.
- Attain a mark of at least 50% in the final exam

Each component of the course may be scaled.

2.2 Assignments

Both assignments are based on a mini-case discussion of a business problem. This requires students to analyse the business problem and design a solution.

Assignment 1 will require the application of object-oriented concepts and the Unified Modelling Language (UML). *Assignment 2* will require the application of traditional (structured) systems analysis & design techniques to be applied to the same problem. The following considerations apply:

1. For assignment 1, students work in groups of from the same class (no exceptions).
2. Submission procedures are covered in section 3.2 of this outline. Failure to comply will generally attract a penalty.
3. Students that commit to a group and then do not honour their commitments will lose marks. Group members are expected to work in a harmonious and professional fashion. *This includes adequate management of non-performing members and conflict management.* A group leader can be selected to help organise group activities.
4. You are to report any problems to the lecturer-in-charge as early as possible. Confidential peer assessments may be used for group assignments if individual contributions vary. The Lecturer-in-Charge will have the final discretionary authority to alter individual marks, based on information provided in the peer assessments and/or direct consultation with involved parties.

2.3 Examination

A formal closed book examination is conducted during the examination period. You must plan on being available for the full examination period to attend the final exam. In addition, you should also ensure that you will be available for a supplementary examination in the event of illness or misadventure. All material covered in lectures, tutorials, and readings are examinable.

2.4 Special Consideration

Information and School policy about special consideration and supplementary examinations can be found from the following website: http://www.sistm.unsw.edu.au/

UNSW policy and process for Special Consideration applies (see https://my.unsw.edu.au/student/atoz/SpecialConsideration.html). Specifically:

- Applications for special consideration (including supplementary examinations) must go through UNSW Central administration (within 3 working days of the assessment to which it refers) – applications will **not** be accepted by teaching staff;
- Applying for special consideration does not automatically mean that you will be granted additional assessment or that you will be awarded an amended result;
- If you are making an application for special consideration (through UNSW Central Administration) please notify your Lecturer in Charge;
- Please note: a register of applications for Special Consideration is maintained. History of previous applications for Special Consideration is taken into account when considering each case.

3. Student Responsibilities

3.1 Class Attendance

The standard university rule applies to class attendance. Namely, you are required to attend at least 80% of classes. In the event of illness or misadventure, you must provide your lecturer with documentary evidence.

3.2 Assignment Submission

It is the your responsibility to adhere to the procedures for submission of assignments otherwise a penalty may apply. The key requirements are:

1. Assignments shall be lodged in class during the week that they are due as indicated in the course schedule. If you have a separate tutorial and lecture, the assignment shall be lodged in your tutorial class.
2. Late submission of assignments and class work will incur a penalty of 10 percent of the maximum available mark per day including weekends and public holidays. For example, an assignment worth 20% will always attract a 2-mark penalty per day. An extension in the time of submission will only be granted under exceptional circumstances by the lecturer-in-charge. In all cases documented evidence must be provided to support such an application.
3. Partial submissions of your assignments will not be accepted.

3.3 Academic Misconduct and Plagiarism

You are reminded that the University regards academic misconduct as a very serious matter. Because of the circumstances in individual cases the period of exclusion can range from one session to permanent exclusion from the University. The following are some of the actions, which have resulted in students being found guilty of academic misconduct:

1. Taking unauthorised materials into an examination;
2. Submitting work for assessment knowing it to be the work of another person;
3. Improperly obtaining prior an examination paper and using it in the examination.

The University regards plagiarism as a form of academic misconduct, and has very strict rules regarding plagiarism. For full information regarding policies, penalties and information to help you avoid plagiarism see: http://www.lc.unsw.edu.au/plagiarism/index.html

Plagiarism is the presentation of the thoughts or work of another as one's own.* Examples include:

- direct duplication of the thoughts or work of another, including by copying work, or knowingly permitting it to be copied. This includes copying material, ideas or concepts from a book, article, report or other written document (whether published or unpublished), composition, artwork, design, drawing, circuitry, computer program or software, web site, Internet, other electronic resource, or another person's assignment without appropriate acknowledgement;
- paraphrasing another person's work with very minor changes keeping the meaning, form and/or progression of ideas of the original;
- piecing together sections of the work of others into a new whole;
- presenting an assessment item as independent work when it has been produced in whole or part in collusion with other people, for example, another student or a tutor; and,
- claiming credit for a proportion a work contributed to a group assessment item that is greater than that actually contributed.†

Submitting an assessment item that has already been submitted for academic credit elsewhere may also be considered plagiarism.

The inclusion of the thoughts or work of another with attribution appropriate to the academic discipline does *not* amount to plagiarism.

Students are reminded of their Rights and Responsibilities in respect of plagiarism, as set out in the University Undergraduate and Postgraduate Handbooks, and are encouraged to seek advice from academic staff whenever necessary to ensure they avoid plagiarism in all its forms.

The Learning Centre website is the central University online resource for staff and student information on plagiarism and academic honesty. It can be located at:

www.lc.unsw.edu.au/plagiarism

The Learning Centre also provides substantial educational written materials, workshops, and tutorials to aid students, for example, in:

- correct referencing practices;
- paraphrasing, summarising, essay writing, and time management;
- appropriate use of, and attribution for, a range of materials including text, images, formulae and concepts.

Individual assistance is available on request from The Learning Centre.

Students are also reminded that careful time management is an important part of study and one of the identified causes of plagiarism is poor time management. Students should allow sufficient time for research, drafting, and the proper referencing of sources in preparing all assessment items.

* Based on that proposed to the University of Newcastle by the St James Ethics Centre. Used with kind permission from the University of Newcastle
† Adapted with kind permission from the University of Melbourne.

3.4 Responsibility to Keep Informed

It is your responsibility to keep informed on breaking news regarding the course. Typically, this information is published on the course website. Occasionally, correspondence of an individual nature is required and e-mail may be sent to your official UNSW e-mail account. For more details refer to the "Course Website".

You should also be familiar with the specific policies of the school found on the school website. This is particularly important for students seeking post examination consultations with staff or applications for special consideration.

3.5 Expected Workload

Students are expected to invest approximately 8-10 hours per week in the following activities:

- Attend class ..... 3 hrs per week
- Examination preparation & reading ..... 2 hrs per week
- Group meetings in addition to class ..... 2 hrs per week
- Contribution to assignments ..... 2 hrs per week

Over-commitment has been a cause of failure for many students. You should take the required workload into account when planning how to balance study with employment and other activities.

3.6 Key Dates for Session 1 2006

It is your responsibility to ensure that:

1. You are recorded by the University as being correctly enrolled in all your courses. The last day for students to discontinue without financial penalty is **Friday March 31** and the last day to discontinue without academic penalty is **Friday 28 April.**
2. You have successfully completed all prerequisite courses. Any work done in courses for which prerequisites have not been fulfilled will (unless an exemption has been granted) be disregarded, and no credit given nor grade awarded.
3. You organise your affairs to take account of examination and other assessment dates where these are known. Be aware that your final examination may fall at any time during the session's examination period. The scheduling of examinations is controlled by the University administration. No early examinations are possible. The examination period for Session 1, 2006 falls between **16 June and 4 July**.
4. When the provisional examination timetable is released (**May 9**), ensure that you have no clashes or unreasonable difficulty in attending the scheduled examinations. The final examination timetable is released on **Tuesday 30 May**.
5. You keep the University informed of all changes to your contact details.
6. You make a copy of all work submitted for assessment, and keep returned marked assignments and essays.

A full list of UNSW Key Dates is located at:
https://my.unsw.edu.au/student/resources/KeyDates.html

3.7 General Conduct and Behaviour

You are expected to conduct yourself with consideration and respect for the needs of your fellow students and teaching staff. Conduct which unduly disrupts or interferes with a class, such as ringing or talking on mobile phones, is not acceptable and students may be asked to leave the class. More information on student conduct is available at: www.my.unsw.edu.au

4. Student Support

4.1 Course Website

WebCT teaching environment will be used for this course. You need to be correctly enrolled and have an active Unipass to access the website. The URL address is http://www.webct.unsw.edu.au. The website will be used to publish announcements, lecture notes and support materials. Students are expected to visit the course website at least weekly to obtain breaking news.

4.2 Education Development Unit

Additional learning support, tailored to the needs of FCE students, is available from the Education Development Unit (EDU) in the Faculty. The EDU offers a range of services for FCE students including:

- Academic skills workshops run throughout the session;
- Printed and on-line study skills resources e.g. referencing guide, report writing and exam preparation;
- A drop-in resource centre containing books and audio visual material that can be borrowed;
- A limited consultation service for students with individual or small group learning needs.

More information about the EDU services including on-line resources, workshop details and consultation request forms are available from the EDU website. EDU services are free and confidential and are available to students of the Faculty of Commerce and Economics. EDU contacts and location are:

EDU Web: http://education.fce.unsw.edu.au

EDU Location: Room 2039, Level 2 Quadrangle Building

4.3 Other UNSW support

In addition to the EDU services, the UNSW Learning Centre provides academic skills support services for students. The Learning Centre is located on Level 2 of the Library and can be contacted by Phone: 9385 3890 or through their website: http://www.lc.unsw.edu.au/. Students experiencing problems of an academic or personal nature are encouraged to contact the Counselling Service at UNSW. This service is free and confidential and run by professional counsellors. The Counselling Service is located on Level 2, Quadrangle East Wing, and can be contact on 9385 5418.

It is important that all students are familiar with University policies and procedures in relation to such issues as:

- **Examination procedures** and advice concerning illness or misadventure https://my.unsw.edu.au/student/academiclife/assessment/examinations/examinationrules.html
- **Occupational Health and Safety** policies and student responsibilities; http://www.riskman.unsw.edu.au/ohs/Policies%20&%20Procedures/UNSW%20OHS%20Accountability.pdf

5. Course Staff

Title	Name	Room	E-Mail
Lecturer -in-Charge	Dr. Aybüke Aurum	Quadrangle Bld, Rm 2072	aybuke@unsw.edu.au
Co-lecturer	Dr. Fletcher Cole	Quadrangle Bld, Rm 2110	f.cole@unsw.edu.au

Please refer to the course website for staff consultation times. When assistance is required, please use the existing avenues for support. These are:

1. YOUR Tutor during tutorials or their scheduled consultation time.
2. University e-mail or telephone should be used only for urgent matters, as there is considerable opportunity for face-to-face communication.
3. As a security measure, your tutor or lecturer may not receive e-mails from anonymous accounts such as yahoo or hotmail. For this reason you should always use your official UNSW student account or your work e-mail. Also, e-mail correspondence should include your student number and your group number.

6. Resources

6.1 Texts

1. Bennett, S.; McRobb, S.; and Farmer, R. 2002, *Object-Oriented Systems Analysis and Design using UML*, 2nd Edition, McGraw Hill. ISBN 0-07-709864-1
2. Kendall, K.E. and Kendall, J.E. 2002, *Systems Analysis & Design (Custom Book)*, pp241-280, 5th Edition, Prentice-Hall. ISBN 1-74009-412-3

(This is a special publication available from the UNSW bookshop comprising of chapters 9, 10 and 11 of the original book. There is no need to purchase the complete original book.)

6.2 Useful References

1. UNSW Faculty of Commerce & Economics, *2003 Student IT Resource Handbook.* Available from Lab supervisors.
2. Dennis A, Wixom BH, Tegarden D (2005): *Systems Analysis & Design with UML Version 2.0: An Object Oriented Approach*
3. Booch, G., Rumbaugh, J., and Jacobson, I. 1999, *The Unified Modelling Language Users Guide*, Addison Wesley.
4. SiAlhir, S. 1998, *UML in a Nutshell*, O'Reilly & Associates.

7. Continual Course Improvement

Each year feedback is sought from students and other stakeholders about the courses offered in the School and continual improvements are made based on this feedback. UNSW's Course and Teaching Evaluation and Improvement (CATEI) Process (http://www.ltu.unsw.edu.au/ref4-5-1_catei_process.cfm) is one of the ways in which student evaluative feedback is gathered. Significant changes to courses and programs within the School are communicated to subsequent cohorts of students'.

8 Course Schedule

Wk	Lecture	Tute Activity	Readings	Due in Tute
1	Introduction to Course • SA&D Context & Principles • System Development Lifecycles		Bennett Ch2, Ch3	
2	Introduction to I.S. Modelling • I.S. Modelling • Fundamental O-O concepts	Overview of Assignment and Case Study	Bennett Ch4, Ch5	
Object-Oriented Systems Analysis & Design				
3	User's View • Use case diagrams • Flow of events and scenarios	System Responsibilities (SR)	Bennett Ch6	Group Registration Form
4	Structural View • Objects, classes • Initial CRCs	Use Cases Flow of events Scenarios	Bennett Ch7, ch8, Ch10	Draft SR
5	Behavioural View: Object Interaction • Sequence, collaboration and activity diagrams	Use Case Diagrams Class & Object Diagrams CRC cards	Bennett Ch9, Ch11	Draft use cases, flow of events
6	O-O Design • Statechart diagrams • Introduction to OO design	Class Diagram Sequence Diagrams	Bennett Ch12 - Ch15	Draft use cases
7	Revision of Object-Oriented Systems Analysis & Design	Statechart Diagram		Draft SD
Session Recess				
Structured Systems Analysis & Design				
8	Introduction to Structured S A & D: • Foundation S A & D Techniques • Waterfall SDLC in detail	Revision of wk2-wk7 tute Overview of Assignment 2		Assignment 1
9	Process Modelling • Functional Decomposition • Process Modelling (DFDs)	Assignment 2 Overview	Kendall & Kendall K&K Ch9	
10	Process Specification • Decision Tree/Table • Structured English, Pseudo code	Event Decomposition Diagram (EDD) Context diagram	K&K Ch11	Draft EDD
11	Project Dictionary • Dictionary Entries • Combining Data & Process	System Level DFD (Level 1 DFD)	K&K Ch10	Draft Level 1 DFD
12	Structured Systems Design • Program module design • Forms/Screen/Report Design	Data Dictionary		
13	Beyond S A & D • Implementation • Support and Maintenance	System Design		Assignment 2
14	Review of the Course • Examination preparation • Course evaluations	Administrative Issues Course Wrap-Up		