THE UNIVERSITY OF
NEW SOUTH WALES

Information Systems, Technology and Management

Australian School of Business

INFS2603
Systems Analysis & Design 1

Course Outline
Session 1, 2008

Please familiarise yourself with the contents of this Outline before attending your first tutorial (Week 1)

COURSE STAFF

		Office	Telephone/email	Consultation time
Lecturer In Charge	Fletcher Cole	QUAD2110	9385 7124 f.cole@unsw.edu.au	TBA – check course website
Tutor	Saifullah Dewan			

1.1 Communication with Staff

When assistance is required, approach your lecturer or tutor during class or the scheduled consultation time.

University e-mail or telephone should be used only for urgent matters.
As a security measure, e-mails from anonymous accounts such as Yahoo or Hotmail will not be answered. Always use your official UNSW student account or your work e-mail. Please sign with your name and student number.

2 INFORMATION ABOUT THE COURSE

2.1 Teaching Times and Locations

The class time is: Wednesday 5 – 7pm, with an additional 1-hour tutorial time arranged at enrolment. Your attendance is important at these classes, and will be monitored. Locations are on your personal timetable, and are listed on the course website.

2.2 Units of Credit

INFS2603 attracts 6 Units of Credit.

2.3 Relationship of This Course to Other Course Offerings

This course covers material that is foundational to the discipline of information systems. It assumes completion of the core information systems courses INFS1602 Information Systems in Business and INFS1603 Business Data Management. The data modelling experience gained in INFS1603 will be drawn on extensively in this course.

This course provides the student with concepts and skills that are essential in careers such as business systems consultants, and systems analysts, designers, and developers.

3 COURSE AIMS AND OUTCOMES

3.1 Course Aims

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

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 (OO) and Structured SA&D;
- Obtain experience in small self-directed work groups, applying skills in interpersonal communications, project management and quality assurance.

3.2 Student Learning Outcomes

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

1) Further appreciate the need to understand the business context of SA&D projects.
2) Understand the principles, terminology and techniques associated with the OO paradigm.
3) Understand a typical Systems Development Life Cycle (SDLC) and explain the different characteristics of OO and structured approaches.
4) Understand the principles, terminology and techniques associated with the structured paradigm.
5) Be able to perform a systems analysis & design activity on a small-scale system.
6) Demonstrate an ability to synthesise ambiguous and incomplete information, and arrive at a decision by applying judgement and commonsense.
7) Understand some of the issues, benefits and disadvantages of working in small groups.
8) Communicate and describe systems with a professional approach in a written documentation.

3.3 Approach to Learning and Teaching

At university the focus is on self-directed search for knowledge. Lectures, tutorials, laboratories, textbooks, exams and other resources are all provided to help this process. The primary vehicle in this course is work carried in collaboration with other students, inside and outside the classroom, under the guidance of your lecturer.

In class we will work through short case studies and other exercises, and this will be a unique opportunity for you to observe Systems Analysis and Design techniques in practice. You are encouraged to seek clarification by asking questions during class. The assignment case study provides another opportunity to apply the concepts learned.

3.4 Teaching Strategies

The course involves four key elements in facilitating your learning – the lecture, the classroom exercises, the collaborative group project, and your own study.

Each lecture will provide a short overview of topic at hand and will focus on explaining the difficult concepts and issues. The role of the lecture is to set the agenda, and to introduce important topics. Slides of the lectures will be available, but these need to be supplemented by your own notes. You will also need to chase up the weekly recommended readings.

Classroom exercises relate to the topic of the current or previous weeks. The role of the exercises is to help build your understanding through the application of what your have learnt to case studies or real-life scenarios. They also give you the opportunity to discuss your work with your fellow students, and hence get an indication of your own progress. The exercises are not assessed as such, but indirectly through your performance in the assignments and the final exam. However, most weeks you will be asked to prepare for certain exercises. Your own notes from tutorials are also an important resource for later reference.

The collaborative group project is a major opportunity to demonstrate knowledge of systems analysis and design techniques, skill in their application, and skill in the management of a group project.

Self-directed private study is an important component of this course. The aims of all tertiary institutions refer, implicitly or explicitly, to the development of self-management skills. You should supplement lectures and classroom activities by reading the set readings, as well as further relevant materials from books, journals and Internet sources, in order to acquire a better understanding of different elements of the course, such as background to the assignment case scenario.

4 Continual Course Evaluation and Improvement

Each session 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.unsw.edu.au/learning/pve/catei.html) is one

of the ways in which student evaluative feedback is gathered. The School also solicits feedback from students during the session. Significant changes to courses and programs within the School do result from this process, to the benefit of subsequent cohorts of students.

5 LEARNING ASSESSMENT

5.1 Formal Requirements

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

- Attain a mark of at least 45% in the assignments (taken together).
- Attain a mark of at least 45% in the final exam.
- Attain an overall mark of at least 50%.
- UNSW regulations stipulate that if students attend less than 80% scheduled classes they may be refused final assessment.

5.2 Assessment Details

Course Component	Element	Weight	Related Learning Outcomes	Mode	Due Date (Friday)
Assignments	Assignment 1 (2 parts)	30%	1,2,5,6,7,8	Group	Part 1, Week 4; Part 2, Week 7
	Assignment 2	15%	1,4,5,6,8	Individual	Week 11
Final Exam	Final Exam	55%	1,2,3,4,6		Exam period
		100%			

5.2.1 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 structured analysis & design techniques to the same problem. Further details, including assessment criteria, will be provided shortly, in a separate document. The following considerations apply:

1. For assignment 1, students work in groups.

2. Submission procedures are covered in later section 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 way. This includes adequate management of non-performing members and conflict management. A group leader may be selected to help organise group activities, but the responsibility for the group's performance falls on all its members.

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 significantly. 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.

5.2.2 Final Exam

A formal closed-book examination worth 55% of the overall marks will be held during the official examination period. You must plan to be 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, classroom exercises, and set

readings is examinable. All exams are conducted in accordance with the UNSW Rules for the Conduct of Examinations and it is your responsibility to be familiar with these rules. Refer to https://my.unsw.edu.au/student/academiclife/assessment/examinations/examinations.html

5.3 Assignment Submission

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

1. Assignments shall be submitted during the week that they are due as indicated in the course schedule and according to the instructions of the lecturer-in-charge..

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 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.

5.4 Special Consideration and Supplementary Examinations (UNSW policy)

If you are ill or suffer a misadventure that you believe adversely impacts on your performance of the final examination or the course overall then you can apply for special consideration. Applications for special consideration (including supplementary examinations) must be made to UNSW Central within 3 working days of the assessment to which it refers.

- Applications cannot be accepted by teaching staff, but please notify the lecturer in charge.

You should note that applying for special consideration does not automatically mean that you will be granted additional assessment or that you will be awarded an amended result. Details of these procedures and polices can be found at:

https://my.unsw.edu.au/student/atoz/SpecialConsideration.html

A central register of applications for Special Consideration is maintained. The history of previous applications for Special Consideration is taken into account when considering each case.

5.5 ASB Policy and Process for Special Consideration and Supplementary Exams in Undergraduate Courses *(Please note: This is a new policy)*

In the Australian School of Business, undergraduate requests for special consideration are determined by a Faculty-wide panel which will advise the Lecturer in Charge of appropriate action.

If the Faculty panel grants a special consideration request, this may entitle the student to sit a supplementary examination. In such cases the following procedures will apply:

- Supplementary exams will be scheduled centrally and will be held approximately two weeks after the formal examination period. The actual date will be advised by mid-semester.
- Where a student is granted a supplementary examination as a result of a request for special consideration, the student's original exam (if completed) will not be marked and only the mark achieved in the supplementary examination will count towards the final grade.

Further information concerning supplementary examinations is available on the 'Policies and Guidelines for Current Students' page of the ASB website: www.business.unsw.edu.au/currentstudents.

6 ACADEMIC HONESTY AND PLAGIARISM

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.

7 STUDENT RESPONSIBILITIES AND CONDUCT

7.1 Workload

It is expected that you will need to allow approximately 12-15 hours per week studying this course. This time will be made up of class preparation, attending classes, and working on exercises and projects. In periods where you need to complete assignments or prepare for examinations, the workload may be greater.

- 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.

7.2 Attendance

Your regular and punctual attendance at lectures and tutorials/labs is expected and necessary for your own learning and the success of many class activities. University regulations stipulate that if students attend less than 80% of scheduled classes they may be refused final assessment.

7.3 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 that is disruptive 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

7.4 Keeping Informed

You should make note of all announcements made in class or on the course website. You should check the course website at least once a week. From time to time, the University will send important announcements to your university e-mail address without providing you with a paper copy. You will be deemed to have received this information.

8 STUDENT RESOURCES

8.1 Course Website

The course website is hosted on WebCT Vista, accessible via www.elearning.unsw.edu.au. To access the course website you must be enrolled in the course. Please note that it can take up to 24hrs for your enrolment in NSS to be updated.

The course 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.

8.2 Textbooks

No single textbook completely covers this course satisfactorily. However you will need to regularly refer to the following:

- Bennett, S., McRobb, S. & Farmer, R. (2006) *Object-Oriented Systems Analysis and Design using UML*. 3rd ed. McGraw Hill.
- Kendall, K.E. & Kendall, J.E. (2002) *Systems Analysis & Design* (Custom Book), p.241-280, 5th ed, Prentice-Hall.
  (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.)

Recommended additional text:

- Hoffer, J.A. George, J.F. & Valacich, J.S. (2008) *Modern Systems Analysis and Design*. 5th ed. Pearson Prentice Hall.

8.3 Other Resources, Support and Information

The University and the Faculty provide a wide range of support services for students, including:

- Learning and study support
    - ASB Education Development Unit http://www2.fce.unsw.edu.au/nps/servlet/portalservice?GI_ID=System.LoggedOutInheritableArea&maxWnd=H_EDU2
    - Learning Centre (http://www.lc.unsw.edu.au)
    - WebCT Vista information (http://elearning.unsw.edu.au/)
- Counselling support (http://www.counselling.unsw.edu.au)
- Library training and support services (http://info.library.unsw.edu.au)
- Disability Support Services. Students with a disability that requires some adjustment in their teaching or learning environment are encouraged to discuss their needs with the Course Coordinator or the Equity Officer (http://www.equity.unsw.edu.au/disabil.html). Early notification is essential to enable any necessary adjustments to be made.

In addition, 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

9 COURSE SCHEDULE

Note: This is subject to alteration. Not all materials in the textbook chapters will be covered.

Week	Begins Monday	Topics	Techniques and activities	Readings	Due
1	10 March	Brief outline of course; System feasibility; Modelling systems	System responsibilities	Bennett Ch 1-3; Hoffer 5	Tutorial exercise; attend Tutorial
OO-inspired Systems Analysis & Design					
2	17 March	SA&D methodologies; Project lifecycles Taking the User's point of view: Scenarios, Use cases and Flow of events	Use case diagrams; Flow of events Activity diagrams	Bennett 3, 21; Bennett 5, 6	Group Registration Form
Session Recess					
3	31 March	Moving from Use case to behaviour Fundamental OO concepts Object interaction: sequence and communication	CRC simulation Sequence and Communication diagrams	Bennett 7, 9	
4	7 April	Identifying system structure	Class & Object diagrams	Bennett 7	**Assignment 1 (Part 1)**
5	14 April	State machines Specifying operations	State machine diagrams Decision charts and diagrams	Bennett 10, 11; Kendall 11	
6	21 April	Transition to OO design; Revision		Bennett 13	
Structured Systems Analysis & Design					
7	28 April	Introduction to Structured SA&D Functional decomposition	Event decomposition diagram (EDD)	Kendall 9	**Assignment 1 (Part 2)**
8	5 May	Whole system process modelling	Context diagrams; System level data flow diagrams (DFD)	Kendall 9	
9	12 May	Detailed data flow modelling	Lower level DFDs	Kendall 9	
10	19 May	Documenting data; Data dictionaries	Data dictionary	Kendall 10	
11	26 May	User Interface Design The human element Form/screen/report design		Bennett 16, 17	**Assignment 2**
12	2 June	Beyond SA&D; Implementation Support and maintenance Exam overview		Bennett 19	

9.1 Tutorial Case: The Payroll System *(Do exercise before first tutorial)*

1. Introduction

Each week, this case study will be examined in class to provide the background experience in SA&D techniques required for your assignments. The case also represents a business function that is applicable in any organization that employs staff.

In your own time, you may wish to draw the various Unified Modelling Language (UML) or structured diagrams using the CASE or drawing software available to you, and further refine those diagrams over the session. It is not expected that you will be able to completely model every detail of the system.

Please bring this problem statement to your first tutorial, and each following week

2. Problem Statement

The payroll system consists of an employee database together with the data such as the timecard information needed to calculate the correct payment amount. All employees have a unique employee ID number.

Some employees work by the hour. They are paid an hourly rate. They submit daily timecards that record the date and number of hours worked. If someone works for more than 8 hours, they are paid 1.5 times their normal rate for those extra hours. Hourly workers are paid every Friday.

Some employees are paid a flat salary. Even though they are paid a flat salary, they submit daily timecards that record the date and hours worked. This is so the system can keep track of the hours worked. They are paid on the last working day of the month.

Some of the salaried employees also receive a commission based on their sales. They submit sales orders that reflect the date and amount of the sale. The commission rate is determined for each employee, and is one of 10%, 15%, 25%, or 35%. Sales people are paid every other Friday.

Initially, the Paymaster holds the employee pay cheque for pick-up. Employees can change their method of payment. They can have their pay cheques mailed to the postal address of their choice or they can request direct deposit and have their pay cheques deposited into a bank account of their choosing.

The Payroll Administrator maintains employee information. The Payroll Administrator is responsible for adding new employees, deleting employees and changing all employee information such as name, address, payment method and payment classification (hourly, salaried, commissioned)

The payroll application will run every Friday and on the last working day of the month. It will pay the appropriate employees on that day. The system will be told what date the employees are to be paid, so it will generate payments for records from the last time the employee was paid to the specified date.

[Note : Based on a tutorial developed by the Rational Software Corporation 1997.]

3. Do the following before the first tutorial

Make a list (in your own words) of the specific things the Payroll System needs to do, and what the System needs to know (what data) in order to do these things.