

MONASH UNIVERSITY

School of Computer Science and Software Engineering CSE3308 Software Engineering: Analysis and Design

Unit Outline

Semester 1 – 2002

Lecturer – David Squire

Objectives

On successful completion of this unit, the student should have:

- Knowledge of the difficulties of specifying and producing large software products, leading to
 - an appreciation of the need for software engineering methodologies
 - understanding of the distinction between software engineering and programming, and thus the distinction between a software configuration and a program
- An understanding of, and ability to apply, the methods of analysis and design, including:
 - structured analysis and design using Yourdon notation
 - object-oriented analysis and design using UML
- An awareness of the problems of managing large software development projects, and the techniques used to address them, including
 - Configuration management
 - Software metrics
 - Validation and verification techniques
 - Quality management
- Knowledge of , and the ability to apply, principles of user interface design such as affordances, awareness of mental models, visibility, mapping and feedback.

Assessment

The assessment in this unit has two components:

- An examination worth 40% of the marks
- Assignments worth 60% of the marks, consisting of
 - A group project worth 45%
 - An individual assignment worth 15%

The exam will be held during in the examination period at the end of the semester.

Passing the Unit

You need to achieve 50% in both the exam and the assignments to pass this unit and achieve an overall mark of 50%, i.e.

- You must get at least 20 marks out of 40 for the exam
- You must get 30 marks out of 60 for the assignments
- You must get 50 marks out of 100 overall

All lecture materials, worksheets and assignment work are examinable.

Lectures

The lectures will be held in lecture room S6 at 2:00pm on Wednesdays and in lecture room C1 at 2:00pm on Thursdays.

Lecture notes for each week will be made available on the unit web site in both PowerPoint and Portable Document Format (PDF) formats. It is your responsibility to ensure that you have copies of all notes, including the assignments.

Practice Classes

There will be two practice classes each week, on Thursday from 12.00 noon to 2:00pm in EH2, and on Friday from 11:00am to 1:00pm in EH2. Attendance at these classes is optional, and students are not expected to attend more than one practice class per week. During a practice class, students are expected to work on practice problems, which will be distributed via the unit web site, or on their assignments.

The lecturer and tutors will be available to comment on, and help with, solutions during the practice class. The practice class provides an ideal opportunity to discuss problems with the lecturer and/or tutors.

Staff

The lecturer in charge of the unit is:

Dr. David Squire

Caulfield: Room B5.23A, Phone 9903 1033 (Main office: Monday and Tuesday first semester

Clayton: Room G12, Building 63 Phone 9905 2479 (Wednesday and Thursday)

Email: David.Squire@csse.monash.edu.au

All queries should be directed to me (David Squire). Since I work on both the Caulfield and Clayton campuses, it is advisable to use email to arrange a meeting if you wish to see me outside of specified consultation hours.

The assistant lecturer for the unit is:

Mr. Joel Reicher

Clayton: Room 120, Building 26, Phone 9905 2470

Email: Joel.Reicher@csse.monash.edu.au

Consultation times

The primary time for consultation is during the practice classes. I will also be available for consultation in my Clayton office between 3:00pm and 5:00pm on Wednesdays. Preference will be given to students who make appointments.

Prescribed Texts

There is no prescribed text for this unit.

Recommended Reading

No one book covers all the material required for unit. The following books cover the core material. Copies have been placed on reserve in the library.

One or both of { Yourdon, E., **Modern Structured Analysis**, 1989
Hargrave-Andrew 004.21 Y81M, Caulfield 004.21 YOU
Page-Jones, Meilir, **The Practical Guide to Structured Systems Design**, 1988
Hargrave-Andrew 004.21 P133P2, Caulfield 004.21 PAG 1:2

One or both of { Booch; Rumbaugh; Jacobson, **The Unified Modeling Language User Guide**, 1998
Hargrave-Andrew 005.12 B724U, Caulfield 005.12 BOO
Page-Jones, Meilir, **Fundamentals of Object-Oriented Design in UML**, 1999
Hargrave-Andrew 005.117 P133F

Pressman, Roger, **Software Engineering: A Practitioner's Approach**, 2000
(4th or 5th edition); Hargrave-Andrew 005.1 P935S, Caulfield 005.1 P935S

Norman, Donald, **The Design of Everyday Things**, 1998; Caulfield 620.82 N842D

Gamma et al., **Design Patterns**, 1994; Hargrave-Andrew 005.12 G193D , Caulfield 005.12 DES

The following books cover many of the important issues in the unit. The perusal of at least some of these books could be helpful in achieving a good mark:

Fowler, Martin: **UML Distilled** 1997; Caulfield 005.12 F787U

Fowler, Martin: **Analysis Patterns: reusable object models** 1997; Caulfield 005.12 FOW

Meyer, Bertrand: **Object-Oriented Software Construction** (2nd Edition) 1997
Hargrave-Andrew 005.1 M612.O, Caulfield 005.1 MEY 1:2

Pfleeger, Shari: **Software Engineering: The Production of Quality Software** 1991
Hargrave-Andrew 005.1 P531S2, Caulfield 005.1 PFL 1:2

Sommerville, Ian: **Software Engineering** (5th Edition) (1996)
Hargrave-Andrew 005.1 S697.2, Caulfield 005.1 SOM 1:5

Tognazzini, Bruce: **Tog on Interface** (1992)
Hargrave-Andrew 005.265 T645T, Caulfield 005.265 APP:TOG

Web Site

The unit web site can be found at:

<http://www.csse.monash.edu.au/courseware/cse3308/>

Resources available from this site will include:

- Lectures (in Powerpoint and PDF formats)
- Worksheets
- Assignment specifications
- Links relevant to the unit
- Anonymous feedback forum – you are expected to check this regularly

Assignment Work

All work submitted by a group must be solely the work of that group. All work submitted by an individual must solely be the work of that individual. This does not mean that you may not consult with other people, including people in the same unit. If you receive any help, however, you **must** specifically acknowledge the person(s) who helped you in your submitted work, and described how they helped.

Plagiarism and Cheating

Students should consult University materials on cheating, in particular:

- Statute 4.1 on Discipline at <http://www.monash.edu.au/pubs/calendar/statutes/statute4.1.html>.
- Student Resource Guide at <http://www.monash.edu.au/pubs/handbooks/srg/>, particularly the section on Cheating at <http://www.monash.edu.au/pubs/handbooks/srg/srg0071.htm>.
- Student Resource Guide - section on Student Rights and Responsibilities at <http://www.monash.edu.au/pubs/handbooks/srg/srg0059.htm>.
- Faculty policy at <http://www.csse.monash.edu.au/~ajh/adt/policies/cheating.html>.

It is the student's responsibility to make themselves familiar with the contents of these documents.

Submission of Assignments

Students are required to submit their assignment by **12 NOON** on the due date. Shortly thereafter, the submission box will be emptied and sealed. Late assignments must be handed directly to staff in the Enquiries Office, where they will be stamped with the date and time received. Late submissions will be penalised at the following rate:

- Submission on the due date but after 12 noon: -10%
- Submission the day after the due date -20%
- Submission two days after the due date: -40%
- Submission 3 or more days after the due date will not be accepted.

Extensions

Extensions will **not** be given for group assignments. Given the size of the groups, the illness of an individual student will not be accepted as a reason for an extension. Part of your project management strategy must be to plan for such contingencies.

In the case of individual work, extensions will be granted only if valid medical certificates are produced.

Group Assignments: differing contributions

All members of the group will rate all other members of the group and these ratings will modify the mark that each individual receives, but not by more than 20%.

If a group is having trouble with an individual member and your efforts to resolve the issue have been fruitless, then the group **must** approach the lecturer to assist in resolving the problem as soon as it arises.

A claim that a student did not contribute his or her fair share will **not be considered** if it is made just prior to the submission of the assignment, or after submission.

Proposed Lecture Schedule

Week	Date (Monday)	Lecture 1	Lecture 2	Assignment
1	4/3/2002	Introduction, Software Products and Processes Software Development Processes		
2	11/3/2002	Project and Configuration Management	What is Analysis and Design?	Assignment 1 handed out
3	18/3/2002	Structured Analysis	Structured Analysis	Assignment 1 Groups decided
4	25/3/2002	Structured Design	Structured Design	
Mid-Semester Break	1/4/2002	No lecture	No lecture	
5	8/4/2002	OO Analysis and Design	OO Analysis and Design	
6	15/4/2002	OO Analysis and Design	OO Analysis and Design	Assignment 1 Progress report due 15/4/2002
7	22/4/2002	Design Patterns	CASE tools	Assignment 2 handed out
8	29/4/2002	Human-Computer Interaction	Human Computer Interaction	
9	6/5/2002	Risk	Reliability	
10	13/5/2002	Validation and Verification	Software Metrics	Assignment 1 due 15/5/2002
11	20/5/2002	Software Quality	Software Development in Industry*	
12	27/5/2002	To be announced	Software Development in Industry*	Practice exam handed out. Assignment 2 due 27/5/2002
13	3/6/2002	Revision	Revision	

* Lecture given by industry representative

Note: This outline is provisional. Check the unit web site for any modifications to the schedule.