

52.234 Systems Analysis and Design

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Timetable: Semester 1

- Lectures
 - Tuesdays 16:00–17:00, McCance 1 (McC1)
 - Wednesdays 13:00–14:00, McCance 1 (McC1)
- Tutorials (?)
- Practicals
 - Livingstone Tower 11.01 Kelvin Lab
 - these will probably start in week 3

Important Reminder

- Make sure you have submitted your lab allocation form
 - this must be returned to L11.05 by **4pm, Friday October 1st**
- Make sure you have re-registered for your computer account
 - fill in a “conditions of use” form (obtainable from L11.05)
 - take this form to L12.05 between
 - 10am-12.30pm
 - 1.30pm-4pm
 - your previous account will expire on 15th October

How Systems Analysis & Design will be taught (1)

- Lectures
 - presentation of concepts and techniques based on case studies
 - lecture slides
 - participation is strongly recommended
 - feel free to interrupt if you have any questions about the material
 - **Advice**
 - you should *take notes* during the lecture
 - after each lecture you should try to summarise the concepts and techniques presented and *read the relevant material in the recommended course textbook*

How Systems Analysis & Design will be taught (2)

- Practicals
 - these are an essential part of the course
 - the practical exercises and exam questions are very similar (hint!)
 - students in the past have found these exercises very useful
 - practise makes perfect!
 - the exercises allow you to check whether you've understood the lecture material
 - get practise in applying various techniques and using tools
 - participation is **compulsory**
 - preparation is essential!

How Systems Analysis & Design will be taught (3)

- Tutorials
 - provide feedback on the previous week's practical
 - provide feedback and clarification
 - give you the opportunity to ask questions
 - participation is highly recommended
- This is the only time that model answers for practical exercises are provided

Workload

- This is a 20 credit class running over 2 semesters
 - the course includes a large number of new concepts and techniques
 - it is **impossible** to cover these at the last minute
 - there is a significant amount of work
 - University Regulations: 10 hours per credit
 - this includes lectures, tutorials and practicals
 - this excludes revision for the exam
 - this means more than 4 hours a week personal study
- The more you take part in the class activities the less personal study you will have to do at the end of the course!

How do you pass the course? (1)

- The course has two components
 - the **exam** which counts for 80% of the final mark
 - the exam component has two parts
 - a **class test** which counts for 10% of the final mark
 - *the class test is compulsory*
 - it will take place on Tuesday 14th December 2004
 - it will cover the course material presented in the first semester
 - the final exam which counts for 70% of the final mark
 - the **coursework** component which counts for 20% of the final mark

How do you pass the course? (2)

- To pass the course you need
 - a pass mark for the coursework
 - a pass mark for the exam
- The final mark is equal to
 - $(0.7 * (\text{final exam mark})) + (0.1 * (\text{class test mark})) + (0.2 * (\text{coursework mark}))$

How do you pass the course? Coursework (1)

- The coursework component has two parts
 - **class project**
 - a large-scale analysis and design project carried out in teams of 4 or 5
 - the project will be carried out in 3 stages over both semesters
 - **practical exercises (Lab participation)**
 - remember: practicals are compulsory!
 - every practical is allocated 5 marks
 - 1 mark for lab presence, 1 mark for submitting the practical, 3 marks for quality (poor attempt, reasonable attempt, excellent attempt)

How do you pass the course? Coursework (2)

- Coursework mark = project mark * (1 + lab participation correction)
 - project mark is the sum of the 3 project stage marks
 - lab participation correction (LPC) depends on the percentage lab mark (PLM) obtained for practical work
 - if $PLM > 90$, then $LPC = (20 - (100 - PLM))/100$ **big bonus**
 - if $70 < PLM \leq 90$, then $LPC = (10 - (90 - PLM)/2)/100$ **small bonus**
 - If $60 < PLM \leq 70$, then $LPC = 0$ **no penalty or bonus**
 - If $PLM \leq 60$, then $LPC = (PLM - 70)/100$ **penalty**
- **Basic idea:** If your lab performance is above par, you get a bonus, if it is below par you get a penalty

How to pass this course: Exemption Scheme

- If you demonstrate exceptional performance during the class tests and practical work you may be **exempt from taking the exam**
 - there will be an additional class test at the end of semester 2
 - this will be a take-home test
 - you need a mark of 60% or more for **each class test**
 - an overall practical mark of 70% or more
 - an individual project mark of 70% or more
 - this is a combination of the group project mark and the self and peer assessment marks

Recommended Course Textbooks

- (***) Requirements Analysis and System Design, Leszek A. Maciaszek, 2nd edition, Pearson Addison Wesley, 2004, ISBN 0321204646
- (**) Object Oriented Systems Analysis and Design, Simon Bennett, Steve McRobb and Ray Farmer, 2nd edition, McGraw-Hill, 2002, ISBN 0077098641
- Some material is covered only by one of these textbooks
- Some material is not covered by either of them

Additional Bibliography

- Systems Analysis and Design, Alan Dennis and Barbara Haley Wixom, 2nd edition, Wiley, 2003, ISBN 0471073229
- Practical Object-Oriented Design with UML, Mark Priestley, 2nd edition, McGraw Hill, 2003, ISBN 0077103939
- Object-Oriented Systems Development: A Gentle Introduction, Carol Britton and Jill Doake, 3rd edition, McGraw Hill, 2003 ISBN 0077099745

Points of Contact (1)

- Class web site
 - www.cis.strath.ac.uk/teaching/ug/classes/52.234
 - announcements
 - lecture summaries
 - practical exercises
 - coursework
- Class Newsgroup
 - **strath.cis.teaching.ug.sad**
 - questions/answers/discussions
 - particularly useful during the class project

Points of Contact (2)

- Course lecturer, Semester 1
 - Email: Alex.Coddington@cis.strath.ac.uk
 - if you have any problems email me to make an appointment
 - Office: L10.05
- Course Demonstrators
 - available only during lab practical sessions

The Main Points so Far (1)

- Lectures
 - participation is strongly recommended
 - the more you take part in class activities throughout the year, the less personal study you will have to do
- Practicals
 - participation is compulsory
 - preparation is essential
 - the marking scheme rewards both participation and preparation

The Main Points so Far (2)

- You need to pass both the coursework and the exam separately
- There will be a class test on Tuesday 14th December
- You need to have continuous access to the course textbooks
- You should check the class website and newsgroup regularly
- **Advice:** There are only a couple of people each year that manage to pass the exam although they have failed the coursework, so try not to fall behind

Course Syllabus

- Aim
 - to provide an introduction to the principles, methods and techniques of systems analysis and design, with an emphasis on object-oriented methodology
- Course prerequisites
 - 52.141 Programming Foundations

Comparing Projects 2003-2004

- Programming foundations exemption project
 - Minesweeper
- Systems Analysis and Design project
 - developing an Airline Information System
 - passenger check-in, luggage handling, departure and arrivals information

Comparing Projects, 2003-2004 (2)

- How long do you think it will take to do these projects?
- Reading the description, is it clear to you what you have to do?
- Which project do you think will be the larger?
- If you had two months to develop each of these projects how many people do you think you would need for this to be feasible?
- If this was a real project what would happen if the project failed?
- What is the main difference between the two project descriptions?

Comparing Projects 2003-2004 (3)

- Real world projects
 - poorly or vaguely specified
 - of significant size
 - involve multiple developers
 - failure can have high costs

Example: An On-line Retail System (1)

- McGregor plc is a chain of retail stores that sells kitchen appliances, mobile phones and electronic home entertainment equipment. The company has recently created an on-line shopping centre, accessed via the World Wide Web. After registering their name and address, shoppers can browse through various products, selecting items and placing them in a virtual trolley. At the end of the trip, shoppers can buy what is in their trolley, remove items or quit without making a purchase. Payment is made by submitting credit card details on-line, or by entering part of the card details and phoning to give the rest. Delivery times are usually within three working days for small items such as mobile phones, but up to three weeks for larger items such as cookers. Goods are despatched directly to the customer's home. Credit cards are debited only on the day of despatch, and between purchase and delivery, customers can use the website to check on the progress of their order.

Example: An On-line Retail System (2)

- Supporting applications
 - marketing staff keep prices and product details up to date in the electronic product catalogue
 - credit card details are stored electronically
 - robot forklift trucks bring items to the loading bay when they are due for despatch
 - delivery drivers follow a schedule linked to an electronic map
 - out of stock items are re-ordered from the supplier by electronic data interchange
 - database entries are automatically updated allowing shoppers to track their order