KXA262/362 Computer Security
Unit Outline
Semester 2, 2003

Prerequisites
KXA151 or KXA152

Corequisites
None

Unit Weight
12.5

Unit Coordinator
Jacky Hartnett
Room V120
(03) 6324 3392
J.Hartnett@utas.edu.au

Scheduled Teaching Sessions
Campuses:
- Launceston
- Hobart

Lectures: 3 hr/wk
Tutorials: 1 hr/wk (from week 2)

The Unit Timetable can be accessed from the Study Resources section of the School website. (http://www.comp.utas.edu.au/app/studyresources.jsp).

Jacky is in Hobart on Tuesday afternoon and Wednesdays during semester 2 teaching weeks. Her office is room 467 and extension number is 2918

Unit Website
The unit website is accessed from http://webct.utas.edu.au:8900. You will need to use your email pop account username and password to log on to the WebCT system. Once authenticated by the system your personalised MyWebCT area will be displayed. It contains links to the websites that you have permission to access - including the website for this unit.

This unit is Web Dependent: communication. This means that you will need to use the Web for this unit. The unit website contains unit information and resources. It is not absolutely essentail to use this web site for content information but you are strongly recommended to look at and use the resources that it contains. This is because much of it supports your assignment work or is designed to help you with your examination preparation. General feedback on assignments and other questions raised by the class will also be provided on this site.

If you are not able to access the unit website, please contact the University IT help desk:
- Level 2 Morris Miller Library, Sandy Bay Campus; Level 0 Building A, Newnham Campus.
- Website: http://www.utas.edu.au/helpdesk
- Telephone: 6226 1818
- Fax: 6226 7669
- Email: HelpDesk@utas.edu.au

Prescribed Text

This is out of print in Australia and available for purchase as a photocopy from the Help Desk in Launceston and the School office in Hobart.

Provider
School of Computing - Faculty of Science, Engineering, and Technology. http://www.comp.utas.edu.au

Useful University Web Links
Information and Resources for ’Current Students' are available on the university website at: http://www.utas.edu.au/students/ It includes useful links such as:

OVERVIEW

Introduction
This advanced computing elective aims to introduce students to the principles behind the techniques and
strategies that can be used to keep computer systems at a desired level of security. It is designed to alert anyone who might have responsibility for a computer system to the security issues that they should consider and equip them with an understanding of how to establish the threats that they might face and the ability to evaluate the techniques that they can use to counter these threats.

These techniques include threat and risk analysis, the characteristics of encryption algorithms and how to use these to achieve particular security goals, authentication techniques, operating system and network security, Internet security and associated protocols, concluding with business continuity planning.

**Objectives**

On successful completion of this unit, you will be able to:

1. Analyse the threats and vulnerabilities in computer systems and evaluate countermeasures
2. Use the principles and justify the application of security countermeasures such as policies, physical security, access control, cryptography, operating system security and network security techniques
3. Evaluate the various protocols for electronic authentication of identity
4. Explain the process of creating a business continuity plan
5. Work in a team to research and produce a solution to a problem concerning a computer security technique, application or problem

**Unit Content**

The following timetable provides an indication of the planned weekly lecture content.

1. Overview of unit content and introductory concepts
2. Threats, Risk Analysis and Security policies
3. Established Business Techniques
4. Physical Access Control
5. Cryptography and cryptographic algorithms
6. Using cryptographic algorithms to achieve security goals
7. Public Key Ownership and PKI
8. Kerberos
9. Authentication and Logical Access Control
10. Security in Operating systems
11. Security standards
12. Network Security
13. Firewalls
14. Intrusion Detection
15. Protocols for securing Internet Transactions
16. Inference Attacks
17. Business Continuity Planning

For more information see the section titled 'Content' on the unit website.

**Generic Skills**

The university has defined a set of generic graduate attributes expected in its graduates. Your course is designed to enable you to develop generic skills that are valued in, and expected of, graduates. These are skills that you will need to develop over time. Hence you are encouraged to look for opportunities, as you study each unit, to reflect on and improve these skills.

In this unit these skills are specifically targeted:

*Knowledge:* Students will have the opportunity to apply their technical and information skills and learn co-operatively by working together in the assignment case study.

*Communication Skills:* Students will further develop their communication skills and ability to write reports by giving presentations in tutorials and submitting a written tender proposal.

*Problem-solving skills:* Students will be required to conceptualise problems and formulate a range of solutions by working effectively with others to produce a written tender proposal.

*Social Responsibility:* Students will learn to acknowledge the social and ethical implications of their actions by examining the results of hacking and computer fraud.

**LEARNING AND TEACHING**

**Approach to Learning**

You are expected to spend about 130 hrs studying in this unit - this includes attendance at scheduled teaching sessions. (For a 13 week semester this is, on average, 10 hr/wk.) This is the amount of study time that the 'typical' student will need to reach the level of competence and understanding required to fulfil the unit objectives.

You are expected to:

- attend all scheduled lectures and tutorials, unless otherwise notified by the unit coordinator
- prepare for, and actively participate in lectures and tutorials
- complete the assigned learning tasks
- review what has been learnt
- complete assessment items and submit them on time
- access and be familiar with the information and resources available on the unit website
• seek help from teaching staff if you have any questions or difficulties in studying this unit

You are encouraged to read the university's Code of Conduct for Teaching and Learning. Part A describes the 'Responsibility of the University to Students' and part B describes the 'Responsibilities of Students to the University'. [http://www.admin.utas.edu.au/HANDBOOKS/UTASHANDBOOKS/RULES/CTEA.html](http://www.admin.utas.edu.au/HANDBOOKS/UTASHANDBOOKS/RULES/CTEA.html)

Schedule

See the 'Schedule' section on the unit website for the timetable and associated resources.

Teaching and Support Staff

Unit Coordinator:

Lecturer: Jacky Hartnett
E-Mail: J.Hartnett@utas.edu.au
Phone: (03) 6324 3392
Room: V120

Teaching Staff

Lecturing Staff

No Lectures Scheduled

School Help Desk

Contact the School Help Desk if you have any queries or problems with accessing, using, or printing from the computers in the School of Computing labs.

- **Hobart:** the Help Desk is located near the School's reception desk and is open in the morning from 9-11, and in the afternoon from 1-2, Monday-Friday. The phone number is 6226 2960.
- **Launceston:** the Help Desk is located near the entrance to the computing labs and is open in the morning from 10-12, and in the afternoon from 2-4:30, Monday-Thursday. On Fridays it is open from 10-12 in the morning and 2-4 in the afternoon. The phone number is 6324 3654.
- **Burnie:** the computer labs at the NWC are maintained by ITS. Please contact the University Help Desk for assistance. The 6 Macs are maintained by the School of Computing. If you have a query or problem that is specific to the School of Computing please phone the School of Computing Help Desk in Launceston.

University Services and Support

The University has staff available to assist you, such as the:

- Learning Development Advisor
- Student Counselor
- Careers Advisor
- Disability Officer

For more information and contact details see the Services and Support section on the University 'Current Students' web page. [http://www.utas.edu.au/students/](http://www.utas.edu.au/students/)

Resources

Unit Website

The unit website contains unit information and resources. It is not absolutely essential to use this web site for content information but you are strongly recommended to look at and use the resources that it contains. This is because much of it supports your assignment work or is designed to help you with your examination preparation. General feedback on assignments and other questions raised by the class will also be provided on this site.

Prescribed Text


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Software

The software that you will need to access the unit website and to study this unit, including general purpose software such as word processors, is provided on the computers in the School's computing labs. If you intend to use software on other computers please check that the versions are compatible.

You will be required to use the freeware version of the email security package, Pretty Good Privacy (PGP), in order to take part in one tutorial and thus prepare for an examination question on the topic. There are also 2 marks awarded for being prepared for this tutorial. Instructions on how to use this software that is installed for
use on the School Mac Labs can be obtained from the School Help Desk. However, in order that your PGP key ring can be stored between sessions of use, you will first need an account on either lawson or alacritas. Should you wish to install PGP on your own computer then this software is available on the 2003 School CD.

Computing Facilities

The School has PC labs (Windows 2000 Professional), Mac labs (Mac OS-X 10.2), Unix labs (linux / X-windows), and Networking labs at the Newnham and Sandy Bay campuses. It also maintains 6 Macs (Mac OS-X 10.2) at the NW Centre.

If you have not used these facilities before please contact the School Help Desk to organise your account details. If you would like to access the facilities at the Newnham and Sandy Bay campuses after hours please contact the School Help Desk.

Please contact the School Help Desk if you have difficulty accessing or using these facilities.

Ethical Use of Facilities

Use of computing facilities provided by the School is subject to the School's Ethics Guidelines - [http://www.comp.utas.edu.au/app/ethics.jsp](http://www.comp.utas.edu.au/app/ethics.jsp). Copies of the guidelines are also available in all School labs. The School's facilities may only be used for study-related purposes, and may not be used for personal gain. The playing of games is strictly prohibited in all labs at all times. Before being granted access to the School's facilities, you will be required to sign a declaration that you have read and understand these guidelines, and that you will abide by them. Disciplinary action may be taken against students who violate the guidelines.

Occupational Health and Safety

The university is committed to providing a safe and secure teaching and learning environment. For more information see [http://www.admin.utas.edu.au/hr/ohs/pol_proc/ohs.pdf](http://www.admin.utas.edu.au/hr/ohs/pol_proc/ohs.pdf)

ASSESSMENT

Assessment Items

**Item 1**

- **Title:** Assignment 1 - Cuckoo's Egg Analysis
- **Type:** In-Semester - individual assignment
- **Weighting:** 8%
- **Due:** 5pm Thursday 14th August

This assignment requires you to read the book 'The Cuckoo's Egg'.

**Item 2**

- **Title:** Assignment 2 - Tender Proposal for a Case Study
- **Type:** In-Semester - group project
- **Weighting:** 20%
- **Due:** 5pm Monday October 13th

**Item 3**

- **Title:** PGP Tutorial Task
- **Type:** In-Semester - learning tasks
- **Weighting:** 02%
- **Due:** Tutorial in week begining 25th August (7)

**Item 4**

- **Title:** Formal Examination
- **Type:** Formal Examination
- **Weighting:** 70%
- **Due:** University Examination Period

See the 'Assessment' section in unit website for more detailed information about assessment items.

In-Semester Assessment

Unless specifically stated in the specification of the assessment item provided on the unit website, it is required that:

- work submitted by a student is the work of that student alone OR
- where the assessment item is to be completed by a group of students, the work submitted by the group of students is the work of that group of students alone.

Plagiarism
Plagiarism is taking and using someone else's thoughts, writings, or inventions and representing them as your own; for example, downloading an essay from a cheat site, copying another student's work, or using an author's words or ideas without citing the source. Plagiarism is a form of cheating. It is a University offence punishable by a range of penalties including a fine or deduction/cancellation of marks and, in the most serious of cases, exclusion from a unit, a course, or the University. **When in doubt consult your lecturer or tutor.** Details of penalties that can be imposed are available in the Ordinance of Student Discipline or at [http://www.utas.edu.au/plagiarism](http://www.utas.edu.au/plagiarism).

**Referencing**

The university document on plagiarism contains information about referencing the work or ideas of others. The preferred text referencing systems for the School is the Harvard system (also referred to as the author-date system). For information on the Harvard system see [http://www.utas.edu.au/library/assist/gpoa/gpoa2.html](http://www.utas.edu.au/library/assist/gpoa/gpoa2.html).

**Submissions**

All in-semester assignment submissions (including electronic submissions) are to include an Assignment Cover Sheet which includes a statement confirming that the submission is your own work. If this undertaking is not signed, the assignment will not be marked. The Assignment Cover Sheet is available from the School Help Desk in Launceston and Hobart, and on the School's web site [http://www.comp.utas.edu.au/app/studyresources.jsp](http://www.comp.utas.edu.au/app/studyresources.jsp).

**Extensions**

Assessment items will not be accepted after the due date except under the conditions stated in the school policy on late assessment. [http://www.comp.utas.edu.au/app/late_assess.jsp](http://www.comp.utas.edu.au/app/late_assess.jsp)

**Formal Examination**

The formal examination is conducted by the University Registrar. The 'Current Students' section on the university website contains information about the conduct of, and timetable for, formal examinations.

The School requires that a student enrolled in this unit must attend at least two thirds of the tutorials. Attendance records will be kept by the School, and a student not attending the minimum number of tutorials will be excluded from the examination unless specifically permitted to take the examination by the Head of the School.

**Final Grade**

Overall assessment will be based on the student's performance throughout the semester as well as in a formal examination. In order to achieve a pass (or better) result, a student must obtain:

1. at least 40% of the total mark for in-semester assessment items
2. at least 40% of the mark for the formal examination
3. at least 50% of the overall mark

Passing grades will be awarded based on the AVCC guidelines:

- PP at least 50% of the overall mark but less than 60%
- CR at least 60% of the overall mark but less than 70%
- DN at least 70% of the overall mark but less than 80%
- HD at least 80% of the overall mark

The maximum mark awarded to a student who fails the unit will be 44.

For more information, including other grades such as Supplementary and Terminating grades, see the School of Computing's guidelines for assessment - available at: [http://www.comp.utas.edu.au/app/assess.jsp](http://www.comp.utas.edu.au/app/assess.jsp)