MONASH University
Information Technology

FIT3031
Information and network security

Unit Guide

Summer semester, 2013

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FIT3031 Information and network security - Summer semester, 2013

This unit will provide students with an understanding of: OSI security architecture; common information risks and requirements; operation of encryption techniques; digital signatures; public key infrastructure; authentication and non-repudiation; intrusion detection and response; firewall defence; privacy and ethics issues; security configurations to PC-based applications; and design of information systems with security compliance and security standards and protocols.

Contact Hours

2 hrs lectures/wk, 2 hrs laboratories/wk

Workload

Students will be expected to spend a total of 24 hours per week during summer semester on this unit as follows:

For on-campus students:

- Two x 2-hour lecture/week and
- Two x 2-hour tutorial/week
- up to 16 hours per week on average for personal study, attending newsgroup discussions and working on assignments.

Off-campus students generally do not attend lecture and tutorial sessions, however, you should plan to spend equivalent time working through the relevant resources and participating in discussion groups each week.

Unit Relationships

Prohibitions

CPE3001, CPE2007, CSE2500, GCO2831, FIT2058, FIT3018, FIT4028, GCO4831

Prerequisites

One of FIT1005, FIT1031, FIT1019, FIT2008, CSE2318, CSE3318 or GCO1815

Chief Examiner

Dr Nandita Bhattacharjee

Campus Lecturer

Clayton

Dr. Abdul Malik Khan

Academic Overview

Outcomes

At the completion of this unit students will be able to:

- describe OSI security architecture;
- describe common security standards and protocols for network security applications e.g. electronic mail, IP, web and network management;
- understand common information risks and requirements;
- explain the operation of conventional and public-key encryption techniques;
- describe the concepts and techniques for digital signatures, authentication and non-repudiation;
- understand privacy and ethics issues;
- appreciate the need for the digital certificates and public key infrastructure;
- appreciate the importance of system security against intruders and malicious software using firewalls;
- appreciate the relevance of privacy and ethics issues to organisations and individuals;
- apply simple security configurations to PC based applications e.g. email, Internet, computer administration;
- design information systems with security compliance.

Graduate Attributes

Monash prepares its graduates to be:

1. responsible and effective global citizens who:

a. engage in an internationalised world
b. exhibit cross-cultural competence
c. demonstrate ethical values

critical and creative scholars who:

a. produce innovative solutions to problems
b. apply research skills to a range of challenges
c. communicate perceptively and effectively

Assessment Summary

Examination (3 hours): 60%; In-semester assessment: 40%

Assessment Task	Value	Due Date
Assignment 1	20%	Friday 25 January 2013, Week 4
Class Test	20%	Monday 11 February 2013, Week 7
Examination 1	60%	To be advised

Teaching Approach

Lecture and tutorials or problem classes

The teaching and learning approach provides facilitated learning, practical exploration and peer learning, equipping you with the ability to apply skills upon completion.

Feedback

Our feedback to You

Types of feedback you can expect to receive in this unit are:

- Informal feedback on progress in labs/tutes
- Graded assignments with comments
- Quiz results
- Other: Solutions to tutes and labs will be discussed in class. Assignment feedback will be provided via comments.

Your feedback to Us

Monash is committed to excellence in education and regularly seeks feedback from students, employers and staff. One of the key formal ways students have to provide feedback is through SETU, Student Evaluation of Teacher and Unit. The University's student evaluation policy requires that every unit is evaluated each year. Students are strongly encouraged to complete the surveys. The feedback is anonymous and provides the Faculty with evidence of aspects that students are satisfied and areas for improvement.

For more information on Monash's educational strategy, and on student evaluations, see:
http://www.monash.edu.au/about/monash-directions/directions.html
http://www.policy.monash.edu/policy-bank/academic/education/quality/student-evaluation-policy.html

Previous Student Evaluations of this unit

The main highlights last year were the addition of:

- Weekly quizzes
- Real life problems in tutorials
- Lab exercises designed to run from students' laptop/desktop

The teaching team agreed to consider a class test based on student response to exams. This was implemented in Semester 1. But with OCL student enrolment, implementation of a class test is not feasible in Semester 2. Hence the second assignment will be a class test in summer B as well.

If you wish to view how previous students rated this unit, please go to
https://emuapps.monash.edu.au/unitevaluations/index.jsp

Required Resources

Please check with your lecturer before purchasing any Required Resources. Limited copies of prescribed texts are available for you to borrow in the library, and prescribed software is available in student labs.

Software:

The software used in this unit is available in the public domain. The software is PGP encryption software which is available at:

http://www.pgpi.org/products/pgp/versions/freeware/win32

and

http://www.gpg4win.org/download.html

Prescribed text(s)

Limited copies of prescribed texts are available for you to borrow in the library.

W. Stallings. (2011). *Network Security Essentials: Applications and Standards*. (4th) Pearson International.

Recommended text(s)

O. Poole. (2003). *Network Security - A Practical Guide*. () Butterworth Heinemann.

J. H. Allen. (2001). *The CERT Guide to System and Network Security Practices*. () Addison-Wesley.

M. Kaeo. (2004). *Designing Network Security - A Practical Guide to Creating a Secure Network Infrastructure*. () CISCO Press.

R. Oppliger. (2003). *Security Technologies for the World Wide Web*. () Artech House.

Unit Schedule

Week	Activities	Assessment
0		No formal assessment or activities are undertaken in week 0
1	Lecture on Jan 03: OSI Security Architecture	
2	Lectures on Jan 07 & Jan 10: Symmetric Encryption & Asymmetric Encryption	
3	Lectures on Jan 14 & Jan 17: Authentication Applications & Web Security	
4	Lectures on Jan 21 & Jan 24: Wireless Security & Electronic Mail Security	Assignment 1 due on Friday 25 January 2013, Week 4
5	Lecture on Jan 31: IP Security	
6	Lectures on Feb 04 & Feb 07: Intrusion Detection and Response & Malicious Software Attack	
7	Lectures on Feb 11 & Feb 14: Firewall Defence & Network Management	Class Test on Monday 11 February 2013, Week 7. The test will be held during the first hour of the lecture on February 11, Week 7. It will cover material covered from Week 1 to Week 5 (until topic on IP Security).
8	Final Examination (3 hours)	Thursday 21 February 2013, Week 8
9		
10		
11		
12		
	Examination period	LINK to Assessment Policy: http://policy.monash.edu.au/policy-bank/academic/education/assessment/assessment-in-coursework-policy.html

*Unit Schedule details will be maintained and communicated to you via your learning system.

Assessment Requirements

Assessment Policy

Faculty Policy - Unit Assessment Hurdles
(http://www.infotech.monash.edu.au/resources/staff/edgov/policies/assessment-examinations/unit-assessment-hu

Academic Integrity - Please see the Demystifying Citing and Referencing tutorial at
http://lib.monash.edu/tutorials/citing/

Assessment Tasks

Participation

- **Assessment task 1**

  Title:
  Assignment 1
  Description:
  This assignment is designed to test students' understanding of symmetric and asymmetric cryptographic concepts and how they can be applied in real world applications. In addition the concepts and network security applications in relation to web, wireless and electronic mail security will be tested. This will be based on the topics covered in Weeks 1 to 3 (until topic on Web Security).
  Weighting:
  20%
  Criteria for assessment:

  1. How well underlying principles and theories are demonstrated in the student's answer
  2. The appropriateness of the formatted report style
  3. The quality of the student's argument

  Further details will be provided in the assignment specification.
  Due date:
  Friday 25 January 2013, Week 4

- **Assessment task 2**

  Title:
  Class Test
  Description:
  This class test is designed to test students' understanding of security protocols and standard practices, including IP security. This will be based on the topics covered in Weeks 1 to 5 (up to the topic covered in Week 5 - IP Security).

  Class Test on Monday 11 February 2013, Week 7. The test will be held during the first hour of the lecture on February 11, Week 7. It will cover material covered from Week 1 to Week 5 (until topic on IP Security).
  Weighting:
  20%
  Criteria for assessment:

1. How well underlying principles and theories are demonstrated in the student's answer
2. The quality of the student's argument

Further details will be provided in the assignment specification.

Due date:

Monday 11 February 2013, Week 7

Examinations

- **Examination 1**

Weighting:

60%

Length:

3 hours

Type (open/closed book):

Closed book

Electronic devices allowed in the exam:

None

Assignment submission

It is a University requirement (http://www.policy.monash.edu/policy-bank/academic/education/conduct/plagiarism-procedures.html) for students to submit an assignment coversheet for each assessment item. Faculty Assignment coversheets can be found at http://www.infotech.monash.edu.au/resources/student/forms/. Please check with your Lecturer on the submission method for your assignment coversheet (e.g. attach a file to the online assignment submission, hand-in a hard copy, or use an online quiz).

Online submission

If Electronic Submission has been approved for your unit, please submit your work via the learning system for this unit, which you can access via links in the my.monash portal.

Extensions and penalties

Submission must be made by the due date otherwise penalties will be enforced.

You must negotiate any extensions formally with your campus unit leader via the in-semester special consideration process: http://www.infotech.monash.edu.au/resources/student/equity/special-consideration.html.

Returning assignments

Students can expect assignments to be returned within two weeks of the submission date or after receipt, whichever is later.

Other Information

Policies

Monash has educational policies, procedures and guidelines, which are designed to ensure that staff and students are aware of the University's academic standards, and to provide advice on how they might uphold them. You can find Monash's Education Policies at: http://policy.monash.edu.au/policy-bank/academic/education/index.html

Key educational policies include:

- Plagiarism (http://www.policy.monash.edu/policy-bank/academic/education/conduct/plagiarism-policy.html)
- Assessment (http://www.policy.monash.edu/policy-bank/academic/education/assessment/assessment-in-coursework-po
- Special Consideration (http://www.policy.monash.edu/policy-bank/academic/education/assessment/special-consideration-policy.h
- Grading Scale (http://www.policy.monash.edu/policy-bank/academic/education/assessment/grading-scale-policy.html)
- Discipline: Student Policy (http://www.policy.monash.edu/policy-bank/academic/education/conduct/student-discipline-policy.html)
- Academic Calendar and Semesters (http://www.monash.edu.au/students/key-dates/);
- Orientation and Transition (http://www.infotech.monash.edu.au/resources/student/orientation/); and
- Academic and Administrative Complaints and Grievances Policy (http://www.policy.monash.edu/policy-bank/academic/education/management/complaints-grievance-policy.
- Codes of Practice for Teaching and Learning (http://www.policy.monash.edu.au/policy-bank/academic/education/conduct/suppdocs/code-of-practice-tea

Student services

The University provides many different kinds of support services for you. Contact your tutor if you need advice and see the range of services available at www.monash.edu.au/students. For Sunway see http://www.monash.edu.my/Student-services, and for South Africa see http://www.monash.ac.za/current/

The Monash University Library provides a range of services and resources that enable you to save time and be more effective in your learning and research. Go to http://www.lib.monash.edu.au or the library tab in my.monash portal for more information. At Sunway, visit the Library and Learning Commons at http://www.lib.monash.edu.my/. At South Africa visit http://www.lib.monash.ac.za/.

Academic support services may be available for students who have a disability or medical condition. Registration with the Disability Liaison Unit is required. Further information is available as follows:

- Website: http://monash.edu/equity-diversity/disability/index.html;
- Email: dlu@monash.edu
- Drop In: Equity and Diversity Centre, Level 1 Gallery Building (Building 55), Monash University, Clayton Campus, or Student Community Services Department, Level 2, Building 2, Monash University, Sunway Campus
- Telephone: 03 9905 5704, or contact the Student Advisor, Student Commuity Services at 03 55146018 at Sunway