FIT3031
Information and network security

Unit Guide

Semester 1, 2013

Last updated: 04 Mar 2013

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FIT3031 Information and network security - Semester 1, 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.

Mode of Delivery

- Caulfield (Day)
- South Africa (Day)

Contact Hours

2 hrs lectures/wk, 2 hrs laboratories/wk

Workload requirements

Students will be expected to spend a total of 12 hours per week during semester on this unit as follows:

For on-campus students:

- Lectures: 2 hours per week
- Tutorials: 2 hours per week per tutorial
- up to an additional 8 hours per week for private study, revision, participating in 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

Caulfield

Nandita Bhattacharjee

Consultation hours: Mondays: 1PM-2PM during the teaching semester

South Africa

Oladayo Bello

Academic Overview

Learning 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.

Unit Schedule

Week	Activities	Assessment
0		No formal assessment or activities are undertaken in week 0
1	Lecture 1: OSI Security Architecture	No Tutorials
2	Lecture 2: Symmetric Encryption	Tutorial 1
3	Lecture 3: Asymmetric Encryption	Tutorial 2
4	Lecture 4 : Authentication Applications	Tutorial 3
5	Lecture 5: Web Security	Tutorial 4
6	Lecture 6: Wireless Network Security	Tutorial 5, Assignment 1 due by 3PM, Friday 19 April 2013
7	Lecture 7: Email Security	Tutorial 6
8	Lecture 8: IP Security	Tutorial 7
9	Lecture 9: Intrusion Detection	Tutorial 8
10	Lecture 10: Malicious Software	Tutorial 9
11	Lecture 11: Firewalls	Tutorial 10
12	Lecture 12: Network Management	Class Test during the lecture 4PM-5PM, Monday 27 May 2013; Tutorial 11 and 12
	SWOT VAC	No formal assessment is undertaken in SWOT VAC
	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 Summary

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

Assessment Task	Value	Due Date
Assignment 1	20%	3PM, Friday 19 April 2013, Week 6
Class Test	20%	4PM-5PM, Monday 27 May 2013, Week 12
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.

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 and wireless network
  security will be tested. It will be based on the topics covered in Weeks 1 to 6 (including the
  topic covered in Week 6 - Wireless Network 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
  4. Performance in the on-line quizzes held during the tutorials each week

  Further details will be provided in the assignment specification.
  Due date:
  3PM, Friday 19 April 2013, Week 6

- **Assessment task 2**

  Title:
  Class Test
  Description:
  The class test is designed to test students' understanding of security protocols and
  standard practices, including IP security. The test will be held in Week 12 during the
  second hour of the lecture. It will be based on the topics covered in Weeks 1 to 8
  (including the topic covered in Week 8 - 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
3. Performance in the on-line quizzes held during the tutorials each week

Further details will be provided in the assignment specification.

Due date:
4PM-5PM, Monday 27 May 2013, Week 12

Examinations

• **Examination 1**

Weighting:
60%
Length:
3 hours
Type (open/closed book):
Closed book
Electronic devices allowed in the exam:
None

Learning resources

Monash Library Unit Reading List
http://readinglists.lib.monash.edu/index.html

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.

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.

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

For Electronic Submission of Assignment 1 please submit your work via the Moodle learning system for this unit, which you can access via links in the my.monash portal.

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 Edition) 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.

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:
www.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 in Coursework Programs;
  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.ht
- 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/dates/
- Orientation and Transition; http://intranet.monash.edu.au/infotech/resources/students/orientation/
- Academic and Administrative Complaints and Grievances Policy;
  http://www.policy.monash.edu/policy-bank/academic/education/management/complaints-grievance-policy.h
- Code of Practice for Teaching and Learning;
  http://www.policy.monash.edu.au/policy-bank/academic/education/conduct/suppdocs/code-of-practice-tead

Graduate Attributes Policy

http://www.policy.monash.edu/policy-bank/academic/education/management/monash-graduate-attributes-policy.ht

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 http://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/.

Monash University Library

The Monash University Library provides a range of services, resources and programs that enable you to save time and be more effective in your learning and research. Go to 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/.

Disability Liaison Unit

Students who have a disability or medical condition are welcome to contact the Disability Liaison Unit to discuss academic support services. Disability Liaison Officers (DLOs) visit all Victorian campuses on a regular basis.

Website: http://www.monash.edu/equity-diversity/disability/index.htmlTelephone: 03 9905 5704 to book an appointment with a DLO; or contact the Student Advisor, Student Commuity Services at 03 55146018 at SunwayEmail: dlu@monash.eduDrop In: Equity and Diversity Centre, Level 1, Building 55, Clayton Campus, or Student Community Services Department, Level 2, Building 2, Monash University, Sunway Campus

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 the Student Evaluation of Teaching and Units (SETU) survey. 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, see:

www.monash.edu.au/about/monash-directions and on student evaluations, see:
www.policy.monash.edu/policy-bank/academic/education/quality/student-evaluation-policy.html

Previous Student Evaluations of this Unit

The main changes 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 the exam. This was implemented in Semester 1. But with OCL student enrolment, implementation of a class test is not feasible in Semester 2.

Students who attempted the weekly quizzes performed better in the exam. In Semester 1, 2013 on-line quizzes will be conducted during the tutorials to assist students learn progressively.

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