MONASH University
Information Technology

FIT3031
Information and network security

Unit Guide

Summer semester, 2014

The information contained in this unit guide is correct at time of publication. The University has the right to change any of the elements contained in this document at any time.

Last updated: 18 Nov 2013

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FIT3031 Information and network security - Summer semester, 2014

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

Workload requirements

Students will be expected to spend a total of 36 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 28 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

Consultation hours: To be advised

Tutors

Clayton

Dr. Abdul Malik Khan

Consultation hours: To be advised

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	None ....Note: Activities are in Days and not in weeks!	No formal assessment or activities are undertaken during this Day-0
1	Day-1:Jan-07: Lecture LN01 on: OSI Security Architecture	
2	Day-2:Jan-08: Complete LN01; Start Lecture LN02 on: Symmetric Encryption	
3	Day-3:Jan-09: Complete LN02; Lecture Start LN03 on: Asymmetric Encryption	
4	Day-4:Jan-14: Lecture LN04 on: Authentication Application	
5	Day-5:Jan-15: Lecture LN05 on: Web Security	
6	Day-6:Jan-16: Lecture LN06 on: Wireless Security	Assignment 1 due Monday 20 January 2014, 4:00 PM
7	Day-7:Jan-21: Lecture LN07 on: Electronic Mail Security	
8	Day-8:Jan-22: Lecture LN08 on: IP Security	
9	Day-9:Jan-23: Lecture LN09 on: Intrusion Detection and Response	
10	Day-10:Jan-28: Lecture LN10 on: Malicious Software Attack	Class Test on Tuesday 28 January 2014. The test will be held during the first hour of the lecture on 28 January 2014. It will cover material from LN01 to LN08 (inclusive of LN08 IP Security).
11	Day-11:Jan-29: Lecture LN11 on: Firewall	
12	Day-12:Jan-30: Lecture LN12 on: Network Management	
	SWOT VAC. Exam in official summer exam period 10-12 Feb. (Scheduled with Examinations Branch)	No formal assessment is undertaken in SWOT VAC. Note: 3 hours of Final Exam To be Advised!
	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%	Monday 20 January 2014, 4:00 PM

Unit Schedule

Class Test	20%	Tuesday 28 January 2014, Day-10
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://intranet.monash.edu.au/infotech/resources/staff/edgov/policies/assessment-examinations/assessment-hurd

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 Days 1 to 6 (until
  topic on Wireless 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:
  Monday 20 January 2014, 4:00 PM

- **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 Days
  1 to 8 (inclusive of LN08 - IP Security).

  Class Test on Tuesday 28 January 2014. The test will be held during the first hour of the
  lecture on 28 January 2014. It will cover material from LN01 to LN08 (inclusive of LN08 -
  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 unit introduction lecture for assessment task 2 which will be a class test.

Due date:
Tuesday 28 January 2014, Day-10

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

Examination/other end-of-semester assessment feedback may take the form of feedback classes, provision of sample answers or other group feedback. Please check with your lecturer on the feedback provided and take advantage of this prior to requesting individual consultations with staff. If your unit has an examination, you may request to view your examination script booklet, see
http://intranet.monash.edu.au/infotech/resources/students/procedures/request-to-view-exam-scripts.html

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. Test results and feedback will be provided for the class test assessment.

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.monash.edu.au/exams/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/student-academic-integrity-managing-pla 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). Please note that it is your responsibility to retain copies of your assessments.

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.

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. (2013). *Network Security Essentials: Applications and Standards*. (5th 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*

Assessment Requirements

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:

- Academic integrity;
  http://www.policy.monash.edu/policy-bank/academic/education/conduct/student-academic-integrity-policy.h
- 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-teac

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 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 has been implemented for both Semester 1 and Summer Semester B. However, with OCL student enrolment included, implementation of a class test is not feasible for Semester 2.

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