FIT5191
Network protocols and network security

Unit Guide

Semester 2, 2014
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FIT5191 Network protocols and network security - Semester 2, 2014

Module 1: In-depth coverage of the protocols used to operate the Internet and intranets, and a selection of major applications, including specific implementations of the protocols and systems. The topics include: Advanced Internet Addressing: IPv6, subnetting, supernetting, TCP Performance and Enhancements: Reno, New-Reno, Fast Retransmit and Recovery, etc. Unicast and multicast routing protocols: BGP4, OSPF, MOSPF, DVMRP, etc. Messaging systems: SMTP, MIME, POP3, IMAP, World Wide Web systems: client-server implementations, HTTP, Real Time Protocols: RTP, RTCP, RSVP, Security and Firewall. Quality of Service issues: DiffServ and IntServ. Network management and Remote File activities.

Module 2: This unit aims to provide students with fundamental knowledge of network and information security. Topics to be covered include network components and services, network computer systems and security policy, security at different system layers, basic cryptography and information security, information security and communications, intrusion detection system, malicious code and detection and prevention systems, authentication systems, and wireless security.

Workload Requirements

10 hrs lectures/wk, 10 hrs tutorials/wk for 5 weeks

Additional workload requirements

Lectures: 2 hours per day
Tutorials/Lab Sessions: 2 hours per day per tutorial
and up to an additional 30 hours in some weeks for completing lab and project work, private study and revision.

Chief Examiner

Associate Professor Andrew Paplinski

Campus Lecturer

Suzhou

Andrew Paplinski and Bala Srinivasan

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:
Previous Student Evaluations of this Unit

Previous feedback has highlighted the following strength(s) in this unit:

This unit provides a comprehensive amount of information about networks.

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

Learning Outcomes

At the completion of this unit students will:

- have a well-developed conceptual framework, enabling them to keep pace with developments in the rapidly changing field of network computing;
- have a thorough understanding of one or more specialised areas of study within network computing;
- be familiar with using current technology, systems and software relevant to network computing;
- be able to practise professionally as a network computing specialist;
- understand the fundamentals of Network Security issues including possible vulnerabilities in a computer system, software and hardware applications;
- be familiar with basic symmetric and asymmetric cryptography including symmetric and asymmetric crypto systems such as DES, RSA, RC4;
- understand authentication systems;
- understand security regime to prevent computer malicious codes such as viruses, logic bombs, etc;
- be familiar with security design at different levels of OSI model, IPSec, SSL, and security at application layer;
- understand the need of firewalls, detection and prevention systems.
## Unit Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Activities</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Introduction</td>
<td>No formal assessment or activities are undertaken in week 0</td>
</tr>
<tr>
<td>1</td>
<td>Sessions 1-3 for network protocols, 1-2 for network security</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Sessions 4-5 for network protocols, 3-5 for network security</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Sessions 6-8 for network protocols, 6-7 for network security</td>
<td>Network Security Class Test on 10 July 2014</td>
</tr>
<tr>
<td>4</td>
<td>Sessions 9-10 for network protocols, 8-10 for network security</td>
<td>Network Protocols Class Test on 15 July 2014</td>
</tr>
<tr>
<td>5</td>
<td>Sessions 11-12 for network protocols, 11-12 for network security</td>
<td></td>
</tr>
</tbody>
</table>

Examination period


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

## Teaching Approach

Lecture and tutorials or problem classes

This teaching and learning approach provides facilitated learning, practical exploration and peer learning.

## Assessment Summary

Examination (3 hours): 50%; In-semester assessment: 50%

<table>
<thead>
<tr>
<th>Assessment Task</th>
<th>Value</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network Security Class Test</td>
<td>25%</td>
<td>10 July 2014</td>
</tr>
<tr>
<td>Network Protocols Class Test</td>
<td>25%</td>
<td>15 July 2014</td>
</tr>
<tr>
<td>Examination 1</td>
<td>50%</td>
<td>To be advised</td>
</tr>
</tbody>
</table>
Assessment Requirements

Assessment Policy

Faculty Policy - Unit Assessment Hurdles

Academic Integrity - Please see resources and tutorials at
http://www.monash.edu/library/skills/resources/tutorials/academic-integrity/

Assessment Tasks

Participation

• Assessment task 1
  
  Title: Network Security Class Test
  Description: Students need to sit a 2-hour class test related to topics studied in the Network Security part of the unit.
  Weighting: 25%
  Criteria for assessment:
  The criteria used to assess submissions are:
  ♦ Correctness and understanding - there may be more than one "right" answer in many cases.
  ♦ Completeness - that you have answered all parts of each question.
  ♦ Presentation - that you have presented your answers using the appropriate method.
  ♦ Use of evidence and argument - you are able to explain your position by using logical argument.
  
  Due date: 10 July 2014

• Assessment task 2
  
  Title: Network Protocols Class Test
  Description: Students need to sit a 2-hour class test related to topics studied in the Network Protocols part of the unit.
  Weighting: 25%
  Criteria for assessment:
  The criteria used to assess submissions are:
  ♦ Correctness and understanding - there may be more than one "right" answer in many cases.
Assessment Requirements

♦ Completeness - that you have answered all parts of each question.
♦ Presentation - that you have presented your answers using the appropriate method.
♦ Use of evidence and argument - you are able to explain your position by using logical argument.

Due date:
15 July 2014

Examinations

• Examination 1

Weighting:
50%
Length:
3 hours
Type (open/closed book):
Closed book
Electronic devices allowed in the exam:
None

Learning resources

Monash Library Unit Reading List (if applicable to the unit)
http://readinglists.lib.monash.edu/index.html

Faculty of Information Technology Style Guide

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 after official results have been published. 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
• Test results and feedback

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.

**Resubmission of assignments**

Resubmission is not possible.

**Referencing requirements**

Library Guides for Citing and Referencing at http://guides.lib.monash.edu/content.php?pid=88267&sid=656564

**Assignment submission**

It is a University requirement (http://www.policy.monash.edu/policy-bank/academic/education/conduct/student-academic-integrity-managing-plagiarism-collusion-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). 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:

1. GPG on Linux platform, free software
2. Wireshark, free software

**Prescribed text(s)**

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


Assessment Requirements

**Examination material or equipment**

Exam will be closed book.
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:

- Student Academic Integrity Policy and Student Academic Integrity: Managing Plagiarism and Collusion Procedures; http://www.policy.monash.edu/policy-bank/academic/education/conduct/student-academic-integrity-policy.html
- Special Consideration; http://www.policy.monash.edu/policy-bank/academic/education/assessment/special-consideration-policy.html
- 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/

Faculty resources and policies

Important student resources including Faculty policies are located at http://intranet.monash.edu.au/infotech/resources/students/

Graduate Attributes Policy

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

Student Charter


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 Malaysia 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 Malaysia, 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.html
- Telephone: 03 9905 5704 to book an appointment with a DLO; or contact the Student Advisor, Student Community Services at 03 55146018 at Malaysia
- Email: dlu@monash.edu
- Drop In: Equity and Diversity Centre, Level 1, Building 55, Clayton Campus, or Student Community Services Department, Level 2, Building 2, Monash University, Malaysia Campus