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FIT5027 Virtual private network - Semester 1, 2013

Layered structure of networks, security threats in an open network environment, and basic security. Detailed exposition of major tools and protocols used in VPNs, including firewalls, IPSec, Internet Security Association and Key Management Protocol (ISAKMP), Internet Key Exchange (IKE), Point-to-Point Protocol (PPP) and Point-to-Point Tunnelling Protocol (PPTP), Layer 2 Tunnelling Protocol (L2TP), Terminal Access Control Access Control System (TACACS), Secure Sockets Layer (SSL), and SOCKS. Exposition of principles and methodologies for the design and implementation of Intranets and Extranets using VPNs.

Mode of Delivery

Caulfield (Evening)

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:

- Two-hour lecture and
- two-hour tutorial (or laboratory) requiring advance preparation;
- a minimum of 2-3 hours of personal study per one hour of contact time in order to satisfy the reading and assignment expectations.

- You will need to allocate up to 5 hours per week in some weeks, for use of a computer, including time for group meetings and project work deliberations.

Unit Relationships

Prohibitions

CPE5006

Chief Examiner

Dr Asad Khan

Campus Lecturer

Caulfield

Dr Asad Khan

Consultation hours: TBA on unit website
Tutors

Caulfield

Dr Abdul Malik Khan
Consultation hours: TBA on unit website

Ms Ghazaleh Pour Sadrollah
Consultation hours: TBA on unit website
Academic Overview

Learning Outcomes

At the completion of this unit students will:

- develop a detailed knowledge and understanding of all major protocols used for VPN;
- detailed knowledge and understanding of VPN architectures including interaction with firewalls;
- develop an understanding of major issues in implementing the protocols;
- have the knowledge and skills to objectively compare and contrast various VPN protocols (eg. L2TP with IPSec and the platform specific variations);
- have the knowledge and skills to enable them to design and implement standard and non-standard VPNs.
**Unit Schedule**

<table>
<thead>
<tr>
<th>Week</th>
<th>Activities</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Unit introduction on the website (No Lecture)</td>
<td>No formal assessment or activities are undertaken in week 0</td>
</tr>
<tr>
<td>1</td>
<td>Unit introduction to VPNs (Tutorials start in Week 1 with Lab Introduction: VMWare/Knoppix VM's)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Networking concepts</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Encryption</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Authentication and Authorisation</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Key Management &amp; CA</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Building simple VPNs</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>VPN Protocols I</td>
<td>Assignment 1 due on Friday 26 April 2012, 12pm</td>
</tr>
<tr>
<td>8</td>
<td>VPN Protocols II</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Building and IPSec VPN</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>VPN with Windows</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Non standard protocols &amp; Plenary session</td>
<td>Tutorial (in-lab) Test</td>
</tr>
<tr>
<td>12</td>
<td>VPN Project discussion - A2 Theoretical work</td>
<td>Assignment 2 (in-lab) Assessments</td>
</tr>
</tbody>
</table>

**SWOT VAC**

- No formal assessment is undertaken in SWOT VAC. Assignment 2 Report due Week 14 (TBA)

- Examination period

**Assessment Summary**

Examination (2 hours): 40%; In-semester assessment: 60%

<table>
<thead>
<tr>
<th>Assessment Task</th>
<th>Value</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignment 1</td>
<td>20%</td>
<td>Friday 26 April 2012, 12pm (teaching week 07)</td>
</tr>
<tr>
<td>Assignment 2</td>
<td>20%</td>
<td>Assessment during the Week 12 tutorials. Written report due Week 14 (TBA)</td>
</tr>
<tr>
<td>Tutorial work assessment</td>
<td>20%</td>
<td>During the Week 11 tutorials</td>
</tr>
<tr>
<td>Examination 1</td>
<td>40%</td>
<td>To be advised</td>
</tr>
</tbody>
</table>

*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 Requirements

Assessment Policy

Faculty Policy - Unit Assessment Hurdles

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 is a theoretical assignment requiring research into selected topic(s) relating to the concepts covered in the lectures. It is done individually by the students.
  Weighting: 20%
  Criteria for assessment:
  This assignment tests the students' ability to build upon the concepts learnt in the lectures, by independently researching the specified topics, and reporting upon these clearly and concisely, in their written reports. This requires:

  1. Correctness and understanding - there may be more than one "right" answer in many cases. We will look for answers that reflect understanding of the underlying principles and theories.
  2. Completeness - that you have answered all parts of each question.
  3. Presentation - that you have presented your answers in a suitably formatted report style.
  4. Use of evidence and argument - you are able to explain your position by using logical argument drawing on the theory presented in the unit.

  Due date: Friday 26 April 2012, 12pm (teaching week 07)

• Assessment task 2

  Title: Assignment 2
  Description: This assignment is completed in groups of up to five students. The students develop and demonstrate the specified aspects of a VPN design as a proof-of-concept demonstration in the lab.

  This assignment tests the practical skills learnt in the tutorial sessions by students developing practical aspects of the VPN, and demonstrating these aspects in the last week of the semester.
  Weighting:
Criteria for assessment:
Student demonstrations will be assessed on the basis of competence and achievements. The written report will be assessed on the basis of correctness and understanding, completeness, presentation and use of evidence and argument.

The assessment criteria takes into account (1) the overall work load of the group and (2) any variations in levels of individual contribution when allocating marks to each group member.

Due date:
Assessment during the Week 12 tutorials. Written report due Week 14 (TBA)

Assessment task 3

Title:
Tutorial work assessment

Description:
The theoretical aspects covered in the lectures are practically undertaken in the tutorial sessions by the students for this assessment.

This assessment comprises the following.

♦ demonstration of hands-on skills acquired in the labs relating to the VPN developments, including related skills in areas of system management and network administration.

Weighting:
20%

Criteria for assessment:
Tutorial sheets are intended to be journals as well as answer sheets, where students should show the details of how they worked on the tutorial tasks. Completion of these sheets during the labs allows obtaining timely feedback.

♦ Assessment marks will be based on ability to demonstrate hands-on skills acquired in the labs.
♦ Portions will be based on correct answers to questions pertaining to tutorial materials.
♦ The assessment is in the form of test conducted in Week 11 during the tutorials.

Due date:
During the Week 11 tutorials

Examinations

• Examination 1

Weighting:
40%

Length:
2 hours

Type (open/closed book):
Closed book

Electronic devices allowed in the exam:
None
Assessment Requirements

Learning resources

Reading list


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

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:

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 of assignments and tutorial work will not be allowed.

Referencing requirements

Referencing requirements will be provided during lectures.
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.

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.

The standard operating environment provided in FIT computer labs is considered adequate for most purposes. However, most of the tutorial exercises require the use of an open source Linux environment, which is provided in the assigned FIT computer laboratory.

Software may be:

- downloaded from the resources page on the unit web site
- or purchased at academic price at good software retailers
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
- 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/

Graduate Attributes Policy

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

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.html
Telephone: 03 9905 5704 to book an appointment with a DLO; or contact the Student Advisor, Student Community Services at 03 55146018 at Sunway
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, 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

There are no changes to the unit. Feedback from previous students evaluation has been very positive and the unit is very well balanced.

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