MONASH University
Information Technology

FIT3149
Network administration

Unit Guide

Semester 1, 2012

Last updated: 21 Feb 2012

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FIT3149 Network administration - Semester 1, 2012

The unit will provide students with fundamentals and theoretical foundations of Network Administration. In addition, students will acquire practical skills needed to plan, install, configure and manage networks through laboratory activities and projects.

Mode of Delivery

Caulfield (Day)

Contact Hours

2 hrs lectures/wk, 2 hrs tutorials/wk

Workload

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/Lab Sessions: 2 hours per week per tutorial
and up to an additional 8 hours in some weeks for completing lab and project work, private study and revision.

Unit Relationships

Prohibitions

CPE2009, CPE3012, CPE5013, CSE3153, FIT2018, FIT5034

Prerequisites

One of CPE1007, CPE2002, CSE2318, CSE3318, FIT1005, FIT2008 or equivalent.

Chief Examiner

Dr Jefferson Tan

Campus Lecturer

Caulfield

Jefferson Tan, Consultation hours: Please check the Moodle site.

Academic Overview

Outcomes

At the completion of this unit students will have -

A knowledge and understanding of:

- the role of a network administrator;
- the configuration and management of common network infrastructure protocols, including DHCP, DNS, LDAP, SMTP, HTTP and others;
- standards relevant to network management systems, including ASN.1, SNMP, SMI/MIB, RMON, DMTF/DMI, and others;
- standards-based models and practices in fault, configuration, accounting, performance and security management of networks.

Gained important practical skills, including:

- independent research of topics in resolving problems associated with network management;
- understanding and use of a range of hardware and software tools for network administration;
- installation, configuration and management of typical network application services.

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

Assessment Task	Value	Due Date
Network Administration Project	30% of unit marks	Both the demo and documentation are due during the student's tutorial session in Week 12.
Assessed Tutorial Work	30% of unit marks in total	Tutorials of Weeks 2, 4, 6, 8 and 10.
Examination 1	40%	To be advised

Teaching Approach

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
- Solutions to tutes, labs and assignments

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

As a result of previous student evaluations, practical tasks will now rely on Ubuntu Linux. We will also put more emphasis on Unix skills to assist those who are unfamiliar with it.

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. Prescribed texts are available for you to borrow in the library, and prescribed software is available in student labs.

This unit will involve access to Linux virtual machines. Virtualization software (VMware Workstation) is available in the labs. VMware Player (Windows and Linux) and VirtualBox are both free. Linux itself is free to download, or you can download prepared Linux virtual machines online, e.g., via VMware marketplace.

Recommended Resources

While virtualization software (VMware Workstation) is available in the labs it is strongly recommended that you install it on your own computer as well.

It is also strongly recommended that students bring an external storage device to their tutorial sessions. Even a 4 GB pendrive would be sufficient to hold a sufficiently large Linux VM, although 8 GB or more can come in handy at times.

Unit Schedule

Week	Activities	Assessment
0		No formal assessment or activities are undertaken in week 0
1	Introduction	
2	System and Network Components	Assessed tutorial work
3	TCP/IP Networking	
4	Network Administration	Assessed tutorial work
5	Network Services	
6	Electronic Mail and Users	Assessed tutorial work
7	Network Security	
8	Directory Services and Network Monitoring	Assessed tutorial work
9	Switching and Routing	
10	Wide Area Networking	Assessed tutorial work
11	Network Maintenance and Operations	
12	Other Matters	Project demo and submission of report
	SWOT VAC	No formal assessment is undertaken 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 MUSO (Blackboard or Moodle) 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

Assessment Tasks

Participation

- **Assessment task 1**

Title:
Network Administration Project

Description:
This is a two-part project involving (1) a demo during Week 12 tutorials, and (2) a technical report handed in during the demo. Students will be working in groups of three members at most to demonstrate a small network that includes key network components and services. The technical report accompanying this demo should describe the testbed and demonstrate the student's understanding of the entire infrastructure.

Detailed specifications will be detailed in this unit's Moodle site.

Weighting:
30% of unit marks

Criteria for assessment:
Each group must designate equitable responsibilities for each member, who is assessed on the functionality and competent exposition of the component(s) he or she is responsible for during the demo. This assessment incorporates both the proper working of the component as well as the clarity and completeness of the demonstration by the student, which includes answering questions and performing configuration changes as required.

The technical documentation will be assessed as a single piece of work with one grade awarded to the group as a whole. Note that no member of the team may be limited to only working on the documentation. Each team member must bear some burden in the demonstration prototype/testbed.

Awarding of marks will also be affected by any additional challenges freely met by the responsible student, e.g., advanced configuration and/or operation of a particular component.

Due date:
Both the demo and documentation are due during the student's tutorial session in Week 12.

Remarks:
Delegation of specific responsibilities within a team should be discussed with the tutor by Week 8, in order to avoid problems of inequitable distribution or unrealistic tasks.

- **Assessment task 2**

Title:
Assessed Tutorial Work
Description:
Some tutorials will have assessments in them to test student understanding of concepts as well as competence with practical work. Up to 30 minutes will be devoted to the concept questions in a quiz format, while the remaining 90 minutes will be spent on tutorial work, which will be assessed with the aid of worksheets.

The marking weight for assessed tutorials in Weeks 2, 4, 6 and 8 are each at 5% of the unit marks, but 10% in Week 10.
Weighting:
30% of unit marks in total
Criteria for assessment:
Quiz-type questions will be marked on the basis of correct answers. Practical work will be marked on the basis of whether or not the required tasks are completed competently. Partial marks may be awarded as it applies for practical work as well as short answer questions in the quizzes.
Due date:
Tutorials of Weeks 2, 4, 6, 8 and 10.

Examinations

- **Examination 1**

Weighting:
40%
Length:
2 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 VLE site 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.

Referencing requirements

The process and format of referencing in the assignment's report must follow the APA style. Guides and tutorials are available for the APA Style for IT students in the university library website.

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

Reading list

- Burgess, M., *Principles of Network and System Administration* (2nd Ed), Wiley, 2004. (http://library.monash.edu.au/vwebv/holdingsInfo?bibId=2017671)
- Limonchelli, T. A., Hogan, C. J., Chalup, S. R., *The Practice of System and Network Administration* (2nd Ed), Addison-Wesley, 2007. (http://library.monash.edu.au/vwebv/holdingsInfo?bibId=2253326)
- Nemeth, E., Snyder, G., Hein, T., Whaley, B., *UNIX and Linux System Administration Handbook* (4th ed), Prentice-Hall, 2010.
- Burke, J.R., *Network Management Concepts and Practice: a Hands-on Approach*, Pearson, 2004.
- Subramanian, M.. *Network Management: Principles and Practice*, Addison Wesley, 2000.
- Stallings, W., *SNMP, SNMPv2, SNMPv3 and RMON I and II* (3E), Addison Wesley, 1998.
- Stallings, W., *Data and Computer Communications* (7E), Prentice Hall, 2004.
- Hunt, C., *TCP/IP Network Administration* (3E), OReilly, 2002.
- Mikalsen, A. and Borgesen, P., *Local Area Network Management, Design and Security*, John Wiley and Sons, 2002.