



MONASH University
Information Technology

FIT2018
Network and systems administration

Unit Guide

Semester 1, 2012

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: 15 Feb 2012

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FIT2018 Network and systems administration - Semester 1, 2012

This unit will provide students with fundamentals and theoretical foundations of network and systems administration. In addition, students will acquire practical skills needed to plan, provide and manage networks through laboratory activities and projects.

This unit covers the following topics: Network administration scope, goals, and philosophy; IT system components and network structures; host computer and user management; standards, technology and protocols; managing networked devices; management issues: planning, implementation, fault diagnosis and performance; network documentation; security and administration; provision and management of common network and application services.

Mode of Delivery

Sunway (Day)

Contact Hours

2 hrs lectures/wk, 2 hrs laboratories/wk

Workload

Students will be expected to spend a total of 12 hours per week during semester on this unit. This will include:

- 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

CPE3012, CPE5013, CSE3153, CPE2009, FIT3149

Prerequisites

One of CPE1007, CPE2002, CSE2318, CSE3318, FIT1005, FIT1031, FIT2008 or equivalent

Chief Examiner

Mr Thomas O'Daniel

Campus Lecturer

Sunway

Thomas O'Daniel

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 network infrastructure protocols used in internets (such as ICMP, DHCP, DNS, LDAP etc);
- host computer and user management;
- network application protocols used by network management systems (such as SNMP, RMON);
- factors involved in and be able to manage the security, reliability and performance of computer networks.

The ability to:

- adopt a problem-solving approach;
- independently research topics and resolve problems associated with network management;
- understand and use a range of hardware and software tools for network and systems administration;
- install, configure and manage network application services such as name, database, mail and web servers;
- act in accordance with best practice, industry standards and professional ethics.

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%	Week 11 - Presentation; Week 12 - Report

Academic Overview

Tutorial/Lab Assessments	Total of 30% spread across several tutorial/lab assessments.	During tutorials of Week 4 through to Week 9
Examination 1	40%	To be advised

Teaching Approach

Lecture and tutorials or problem classes

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

Lectures will cover theory, standards, and ethics, which will be put into practice in theand practice in a hands-on lab environment.

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
- Interviews
- 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

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.

You will need access to the following software:

- A virtual machine platform. For compatibility with the labs, use VirtualBox 4.0.14 (https://www.virtualbox.org/wiki/Download_Old_Builds_4_0). You are free to use any combination of virtualisation platform and operating system, but only VirtualBox 4.0.n and the operating system images distributed as part of the unit materials will be directly supported.
- A vector graphics tool for creating diagrams. Dia is recommended: (<http://dia-installer.de/>) the current Dia release (0.97.2) has been tested successfully on Windows 7, Windows Vista and Windows XP, Linux and Mac OS X.

Prescribed text(s)

Prescribed texts are available for you to borrow in the library.

Northcutt, Stephen . (2004). *IT Ethics Handbook : Right and Wrong for IT Professionals*. (<http://library.monash.edu.au/vwebv/holdingsInfo?bibId=2327958>) Syngress.

Recommended Resources

Essential System Administration

<http://library.monash.edu.au/vwebv/holdingsInfo?bibId=1898564>

Principles of Network and System Administration.

<http://library.monash.edu.au/vwebv/holdingsInfo?bibId=2017671>

TCP/IP Network Administration, 3rd Edition

<http://library.monash.edu.au/vwebv/holdingsInfo?bibId=1722783>

DNS and BIND

<http://library.monash.edu.au/vwebv/holdingsInfo?bibId=2908296>

LDAP System Administration

<http://library.monash.edu.au/vwebv/holdingsInfo?bibId=1898558>

Cisco IOS in a Nutshell

<http://library.monash.edu.au/vwebv/holdingsInfo?bibId=2010030>

Wicked Cool Shell Scripts : 101 Scripts for Linux, Mac OS X, and UNIX Systems

<http://library.monash.edu.au/vwebv/holdingsInfo?bibId=2297376>

Cyber Crime Investigator's Field Guide

<http://library.monash.edu.au/vwebv/holdingsInfo?bibId=2887613>

The IT Regulatory and Standards Compliance Handbook

<http://library.monash.edu.au/vwebv/holdingsInfo?bibId=2699975>

The Illustrated Network: how TCP/IP Works in a modern network

<http://library.monash.edu.au/vwebv/holdingsInfo?bibId=2850250>

Network Consultants Handbook

<http://library.monash.edu.au/vwebv/holdingsInfo?bibId=1797622>

Unit Schedule

Week	Activities	Assessment
0		No formal assessment or activities are undertaken in week 0
1	Introduction to Network Administration	
2	System and Network Components	
3	TCP/IP Networking	
4	TCP/IP Network Administration	Assessment Task 2 commences during tutorials of Week 4 through to Week 9
5	TCP/IP Network Services	
6	Electronic Mail and Users	
7	Network Security	
8	Directory Services and Network Monitoring	
9	Switching and Routing	
10	Wide Area Networking	
11	Network Maintenance and Operations	Assessment Task 1: Project demonstrations during tutorials
12	Other Network Matters and Revisions	Assessment Task 1: Report due
	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:

Students in groups of at most four members will be required to build, document, and demonstrate a TCP/IP network, configured with essential network services and additional features. Several base scenarios will be available to choose from as a starting point. Time will be allocated during some tutorials for work on the project using equipment in the labs. Students will be expected to answer questions about their system during the demonstration.

Weighting:

30%

Criteria for assessment:

1. The network and its services work as intended: 50% of the project mark
2. The report documents the system and indicates a correct understanding of how the network components fit into the whole. The report and demonstration are 30% of project mark.
3. The project management component will constitute the remaining 20% of the project's total marks, and will also be used to assess individual contributions to the project outcome.

Due date:

Week 11 - Presentation; Week 12 - Report

• Assessment task 2

Title:

Tutorial/Lab Assessments

Description:

During a number of tutorials, students will be assessed as they accomplish configuration, installation and operational tasks. The entire tutorial period may be allotted for the assessment, with tutors on hand to provide reasonable assistance.

Weighting:

Total of 30% spread across several tutorial/lab assessments.

Criteria for assessment:

Individuals will be required to demonstrate correct configuration, installation, analysis, troubleshooting or operation of one or two network components, which would combine both hardware and software. Partially correct executions of what is required will be awarded partial points. Students may be asked to explain their work as part of assessing the correctness of what was accomplished.

Assessment Requirements

Due date:

During tutorials of Week 4 through to Week 9

Remarks:

Students will be allowed to consult whatever references they can find, whether in print or online, but they may not consult other students of this unit on any campus at any time during the assessment.

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

All references in the project should be identified and properly cited in the project report. Failure to do so may constitute an act of plagiarism if the source material is neither paraphrased sufficiently nor quoted. Refer to the Library Guides for Citing and Referencing at <http://guides.lib.monash.edu/content.php?pid=88267&sid=656564>

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-p>)
- 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 Community Services at 03 55146018 at Sunway