



MONASH University
Information Technology

FIT3130
Computer network design and deployment

Unit Guide

Semester 2, 2011

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: 22 Aug 2011

Table of Contents

<u>FIT3130 Computer network design and deployment - Semester 2, 2011</u>	1
<u>Mode of Delivery</u>	1
<u>Contact Hours</u>	1
<u>Workload</u>	1
<u>Unit Relationships</u>	1
<u>Prohibitions</u>	1
<u>Prerequisites</u>	1
<u>Chief Examiner</u>	1
<u>Campus Lecturer</u>	1
<u>Caulfield</u>	1
<u>South Africa</u>	2
<u>Tutors</u>	2
<u>Caulfield</u>	2
<u>Academic Overview</u>	3
<u>Learning Objectives</u>	3
<u>Graduate Attributes</u>	3
<u>Assessment Summary</u>	3
<u>Teaching Approach</u>	4
<u>Feedback</u>	4
<u>Our feedback to You</u>	4
<u>Your feedback to Us</u>	4
<u>Previous Student Evaluations of this unit</u>	4
<u>Unit Schedule</u>	5
<u>Assessment Requirements</u>	6
<u>Assessment Policy</u>	6
<u>Assessment Tasks</u>	6
<u>Participation</u>	6
<u>Examinations</u>	6
<u>Examination 1</u>	7
<u>Assignment submission</u>	7
<u>Extensions and penalties</u>	7
<u>Returning assignments</u>	7
<u>Other Information</u>	8
<u>Policies</u>	8
<u>Student services</u>	8

FIT3130 Computer network design and deployment - Semester 2, 2011

This unit aims to introduce the systematic top-down network design approach for designing enterprise computer networks. A top down process focuses on requirements analysis and architecture design, which should be completed before the selection of specific network components. The unit provides students with tested processes and tools to help them understand traffic flow, communication protocol behaviour, and internetworking technologies. On completion of the unit, students are equipped to design enterprise computer networks that meet an enterprise users requirements for functionality, capacity, performance, availability, scalability, affordability, security, and manageability.

Mode of Delivery

- Caulfield (Day)
- South Africa (Day)

Contact Hours

2 hrs lectures/wk, 2 hrs laboratories/wk

Workload

- Lectures: 2 hours per week
- Practical classes/Tutorials : 2 hours per week
- Private study (revision, homework and practical class preparation): 8 hours per week

Unit Relationships

Prohibitions

CSE3821, CPE3004, CSE5807, FIT3030, FIT3024

Prerequisites

One of FIT1005, FIT2008, BUS2062, CPE1007, CSE2004, CSE2318, CSE3318 or GCO3812

Chief Examiner

Dr Jefferson Tan

Campus Lecturer

Caulfield

Dr Suttisak Jantavongso

Contact hours: Wednesday 10am - 12pm

South Africa

Dr Mohan Das

Tutors

Caulfield

Quazi Mamun

Academic Overview

Learning Objectives

At the completion of this unit students should have:

- a detailed knowledge and understanding of all major protocols used in LAN & WAN and WLAN;
- an understanding of major issues in implementing these protocols;
- a detailed knowledge and understanding of network architectures including interaction with firewalls;
- an awareness of the latest developments in TCP/IP (e.g. IPv6, IPSec, multicasting, VoIP, QoS, iSCSI);
- the knowledge and skills to implement and manage TCP/IP services within wired and wireless LANs;
- understand various measures of data network performance;
- exposition of network performance evaluation tool, Network packet analysers, and other performance measurement tools;
- use simulation packages to construct models of computer networks;
- use models for performance analysis and prediction;
- make recommendations for network performance improvement;
- practical skills in setting up TCP/IP connections and routing configurations for different environments;
- experience in setting up LANs and WANs, and wireless LANs using standard protocols.

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): 60%; In-semester assessment: 40%

Assessment Task	Value	Due Date
Computer Network Design and Deployment - Group Assignment: Report and Presentation	40%	Presentation in Week 9 or Week 10 Tutorial (to be confirmed), Report due Wednesday 5 October 2011, 4pm
Examination 1	60 %	To be advised

Teaching Approach

Lecture and tutorials or problem classes

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

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

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>

Unit Schedule

Week	Activities	Assessment
0	Students should register for tutorials	No formal assessment or activities are undertaken in week 0
1	Introduction of unit, Part I - Identifying network users' needs and goals: Analysing business goals and constraints; analysing technical goals and tradeoffs	
2	Characterising the existing internetwork; characterising network traffic; **Tutorials begin this week.**	
3	Part II - Logical Network Design: designing a network topology	
4	Designing models for Addressing and Naming	
5	Selecting Switching and Routing Protocols	
6	Developing Network Security Strategies	
7	Developing Network Management Strategies	
8	Part III - Physical Network Design: Selecting Technologies and Devices for Campus Networks	
9	Selecting Technologies and Devices for Enterprise Networks	Assignment Presentation in Week 9 Tutorial (to be confirmed)
10	Part IV - Testing, Optimizing, and Documenting Network Design: Testing the network design	Assignment Presentation in Week 10 Tutorial (to be confirmed), Report due Wednesday 5 October 2011, 4pm
11	Optimizing your network design	
12	Documenting the network design	
	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

To pass a unit which includes an examination as part of the assessment a student must obtain:

- 40% or more in the unit's examination, and
- 40% or more in the unit's total non-examination assessment, and
- an overall unit mark of 50% or more.

If a student does not achieve 40% or more in the unit examination or the unit non-examination total assessment, and the total mark for the unit is greater than 50% then a mark of no greater than 49-N will be recorded for the unit

Assessment Tasks

Participation

- **Assessment task 1**

Title:

Computer Network Design and Deployment - Group Assignment: Report and Presentation

Description:

Students are to write a multi-site campus network specifications document (business requirements and technical goals); carry out logical network design (topology and choice of routing protocols, etc.), selection of technologies and devices for physical design, use the simulation package to test some input traffic, observe the network performance and optimise the parts of networks to improve performance.

Weighting:

40%

Criteria for assessment:

Students will be assessed individually on their contribution to the group based project with respect to the formal group report and presentation by:

- ◆ Quality of group presentation
- ◆ Conciseness of report
- ◆ Discussion of design specification
- ◆ Evaluation of network design parameters (logical design)
- ◆ Selection of internetworking devices and technology (physical design)
- ◆ Design documentation, conclusion and limitation

Due date:

Presentation in Week 9 or Week 10 Tutorial (to be confirmed), Report due Wednesday 5 October 2011, 4pm

Examinations

Assessment Requirements

• Examination 1

Weighting:

60 %

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).

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

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. 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. 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://adm.monash.edu/sss/equity-diversity/disability-liaison/index.html>;
- Telephone: 03 9905 5704 to book an appointment with a DLO;
- Email: dlu@monash.edu
- Drop In: Equity and Diversity Centre, Level 1 Gallery Building (Building 55), Monash University, Clayton Campus.