MONASH University
Information Technology

FIT2020
Networks and data communications 2

Unit Guide

Semester 1, 2010

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FIT2020 Networks and data communications 2 - Semester 1, 2010

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Introduction

Welcome to FIT2020/GCO3824. This unit covers internetworking protocols and their use.

Unit synopsis

This unit will introduce students to advances in the distributed networked environment. The unit provides knowledge of internetworking protocols, QoS for critical applications, network management and TCP/IP operation. Access to the universitys computer systems through an internet service provider is compulsory for distance education students.

Learning outcomes

At the completion of this unit students will be able to:

- describe the ISO OSI reference model;
- describe Internet protocol architecture;
- analyse the main functions and design issues of the network layer;
- describe the operation of IPv6;
- analyse the operation of TCP;
- understand network security risks, requirements, and common security measures;
- understand network management architecture;
- understand common Internet applications including email, ftp, telnet and the WWW;
- understand the basic concepts of multimedia communications and QoS.

Contact hours

2 hrs lectures/wk, 2 hrs tutorials/wk

Workload

For on campus students, workload commitments are:

- two-hour lecture and
- two-hour tutorial
- 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 newsgroups/discussion groups.

Off-campus students generally do not attend lecture and tutorial sessions, however, you should plan to spend equivalent time working through the relevant resources and participating in discussion groups each week.

Unit relationships

Prerequisites

FIT1005 or GCO3812 or equivalent

Prohibitions

GCO3824

Teaching and learning method

Teaching approach

For this unit, lectures, tutorials, lab exercises and on line discussion groups will be used for teaching.

Timetable information

For information on timetabling for on-campus classes please refer to MUTTS,
http://mutts.monash.edu.au/MUTTS/

Tutorial allocation

On-campus students should register for tutorials/laboratories using the Allocate+ system:
http://allocate.its.monash.edu.au/

Unit Schedule

Week	Date*	Topic	Key dates
1	01/03/10	Concepts of Protocols and Layered Architecture	
2	08/03/10	Network Layer Functions and Design Issues	
3	15/03/10	Internetworking	
4	22/03/10	The Internet and Routing Protocols	
5	29/03/10	IP Version 6 (IPv6) or IP New Generation (IPNG)	
Mid semester break			
6	12/04/10	Transport Services and Mechanisms	Assignment 01 due
7	19/04/10	Transport Protocol of the Internet TCP and UDP	
8	26/04/10	Network Security 1	
9	03/05/10	Network Security 2	
10	10/05/10	Network Management and Internet Applications 1	Assignment 02 due
11	17/05/10	Internet Applications 2	
12	24/05/10	Multimedia Communications	
13	31/05/10	Revision	

*Please note that these dates may only apply to Australian campuses of Monash University. Off-shore students need to check the dates with their unit leader.

Unit Resources

Prescribed text(s) and readings

William Stallings, *Data Communications and Networking*, Prentice Hall, 8th Edition, 2007

OPNET lab manual to accompany
Data and Computer Communications, Kevin Brown, Publisher: Prentice Hall, 2004, 0-13-148252-1

Text books are available from the Monash University Book Shops. Availability from other suppliers cannot be assured. The Bookshop orders texts in specifically for this unit. You are advised to purchase your text book early.

Recommended text(s) and readings

William Stallings, *Data Communications and Networking*, Prentice Hall, 8th Edition, 2007

Required software and/or hardware

OPNET software trail version from OPNET.COM (Free for teaching and learning purposes)

Equipment and consumables required or provided

Students studying off-campus are required to have the minimum system configuration specified by the Faculty as a condition of accepting admission, and regular Internet access. On-campus students, and those studying at supported study locations may use the facilities available in the computing labs. Information about computer use for students is available from the ITS Student Resource Guide in the Monash University Handbook. You will need to allocate up to **3** hours per week for use of a computer, including time for newsgroups/discussion groups.

Study resources

Study resources we will provide for your study are:

Online Unit Book with 12 study guides, MUSO website, where discussion groups will be moderated by the lecturer

Assessment

Overview

Examination (3 hours): 60%: In-semester assessment: 40%

Faculty 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.

Assignment tasks

Assignment coversheets

Assignment coversheets are available via "Student Forms" on the Faculty website:
http://www.infotech.monash.edu.au/resources/student/forms/
You MUST submit a completed coversheet with all assignments, ensuring that the plagiarism declaration section is signed.

Assignment submission and return procedures, and assessment criteria will be specified with each assignment.

- **Assignment task 1**

  Title:
  Assignment 1
  Description:
  This assignment will test concepts of layers, internetworking and routing.
  Weighting:
  15%
  Due date:
  12th April 2010

- **Assignment task 2**

  Title:
  Assignment 2
  Description:
  This assignment will test concepts of routing protocols, transport layer, security, network management, QoS and application layer. This assignment will also require students to do lab work and include results to support their answers.
  Weighting:
  25%
  Due date:

10th May 2010

Examination

- **Weighting:** 60%
  Length: 3 hours
  Type (open/closed book): Closed book

See Appendix for End of semester special consideration / deferred exams process.

Due dates and extensions

Please make every effort to submit work by the due dates. It is your responsibility to structure your study program around assignment deadlines, family, work and other commitments. Factors such as normal work pressures, vacations, etc. are not regarded as appropriate reasons for granting extensions. Students are advised to NOT assume that granting of an extension is a matter of course.

Students requesting an extension for any assessment during semester (eg. Assignments, tests or presentations) are required to submit a Special Consideration application form (in-semester exam/assessment task), along with original copies of supporting documentation, directly to their lecturer within two working days before the assessment submission deadline. Lecturers will provide specific outcomes directly to students via email within 2 working days. The lecturer reserves the right to refuse late applications.

A copy of the email or other written communication of an extension must be attached to the assignment submission.

Refer to the Faculty Special consideration webpage or further details and to access application forms: http://www.infotech.monash.edu.au/resources/student/equity/special-consideration.html

Late assignment

Assignments received after the due date will be subject to a penalty or will not be accepted

Return dates

Students can expect assignments to be returned within two weeks of the submission date or after receipt, whichever is later.

Appendix

Please visit the following URL: http://www.infotech.monash.edu.au/units/appendix.html for further information about:

- Continuous improvement
- Unit evaluations
- Communication, participation and feedback
- Library access
- Monash University Studies Online (MUSO)
- Plagiarism, cheating and collusion
- Register of counselling about plagiarism
- Non-discriminatory language
- Students with disability
- End of semester special consideration / deferred exams