FIT2008
Networks and data communications

Unit Guide

Semester 2, 2010

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FIT2008 Networks and data communications - Semester 2, 2010

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Introduction

Welcome to FIT2008 Networks and Data Communications for semester 2, 2010. This 6 point unit is core to the Bachelor of Software Engineering. The unit has been designed to provide you with an understanding of data communications and networks, including such topics as standard layered architecture approach and the OSI model and each of its layers. This will introduce the fundamental building blocks of a communications system.

Unit synopsis

This unit will introduce students to fundamentals of distributed networked environment. The unit provides knowledge of internetworking standards and understanding of the networking architecture, technology and operation.

Learning outcomes

At the completion of this unit students will have -
The ability to:

- discuss network architecture standards for open systems;
- describe ISO reference and Internet models;
- explain fundamentals and technologies of physical, data-link and network layers;
- understand the functions and architectures of LAN and WAN; and
- analyse and design LAN architecture for organisational requirements.

Developed attitudes that enable them to:

- adopt a problem solving approach;
- accept the code of professional conduct and practice; and
- act in accordance with best practice, industry standards and professional ethics.

Developed the skills to:

- gain practical skills to analyse data communication networks.

Demonstrated the communication skills necessary to:

- cooperate effectively within small groups; and
- present their work in various forms.

Contact hours

2 hrs lectures/wk, 2 hrs laboratories/wk

Workload

For on campus students, workload commitments are:

Each teaching week requires,

- A two-hour lecture and

- A two-hour tutorial (or laboratory) requiring advance preparation
- A minimum of 2 hours of personal study in order to satisfy the reading and assignment expectations.

You will also need to allocated 4 hours of personal study time in Week 7 for the Unit Test.

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

Prohibitions

BUS2062, CSE2004, CSE2318, CSE3318, GCO3812, CPE1007, FIT1005, BUS3150

Teaching and learning method

Teaching approach

FIT2008 uses a lecture-tutorial teaching approach.

The lectures will discuss the weeks theoretical concepts and will also go through specific examples and demonstrations.

In tutorials students will discussin-depth fundmental aspects about networks and data communications and apply their understanding to practical examples. The tutorials are critical in helping student consolidate concepts andpractise their problem solving skills. Some tutorials will also contain a hands-on laboratory element.

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	19/07/10	Introduction to Data Communications	
2	26/07/10	Data Transmission	
3	02/08/10	Transmission Media	
4	09/08/10	Signal Encoding 1	
5	16/08/10	Signal Encoding 2	Assignment One due Mon 16/Aug, 12PM
6	23/08/10	Digital Data Communication Techniques	
7	30/08/10	Data Link Control Protocols	Hands-on Lab Practical Assessment
8	06/09/10	Multiplexing	Unit Test
9	13/09/10	Local Area Networks	
10	20/09/10	High-Speed LANs	
		Mid semester break	
11	04/10/10	Internetworking	
12	11/10/10	Internetworking and Transport Protocols	Assignment Two due Mon 11/Oct, 12PM
13	18/10/10	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.

Improvements to this unit

The unit now includes hands-on practicals and a mid-term (unit) test. The coursework contents have been revised with emphasis on network design and industry practices.

Unit Resources

Prescribed text(s) and readings

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

Textbooks are available to purchase from Campus bookshops.

Recommended text(s) and readings

Behrouz A. Forouzan, Data Communications and Networking, 4th edition, 2007, McGraw-Hill.

David Stamper et al, Business Data Communications, 6th Edition, 2003, Prentice Hall.

Fred Halsall, Data Communications, Computer Networks, and Open Systems, 4th Edition, 1998, Addison-Wesley.

Required software and/or hardware

Web Browser is needed to access study and tutorial material.

Email Client is required.

Wireshark (freeware) is optional; recommended for home/out-of-lab study.

Equipment and consumables required or provided

Students 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 2 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:

Study resources we will provide for your study are:

- The FIT1005/FIT2008 web site on Moodle, where lecture slides, weekly tutorial requirements, assignment specifications, sample solutions and supplementary material will be posted.
- Newsgroups/discussion groups that can be linked to from the Unit Homepage

Assessment

Overview

Examination (2 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.

It is recommended that students attend at least **80% of lectures and tutorials**, as success in this subject requires good understanding of the material which cannot be gained by reading lecture notes alone.

DE Students Only: Alternative assessment to Practical work & Unit/Class Test will be given to Distance Education students during teaching week 8

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 submission and preparation requirements will be detailed in each assignment specification. 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.

- **Assignment task 1**

  Title:
  > Assignment 1

  Description:
  > This assignment tests your theoretical understanding of the introductory data communications concepts through a series of short answer questions. **FIT2008 will be required to complete an additional task within this assignment of writing a short essay relating to a networking topic.**

  Weighting:

15%

Criteria for assessment:

1. Completeness - that you have answered all parts of each question. Presentation - that you have presented your answers in a suitably formatted report style.
2. 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:

Mon 16/Aug, 12PM

- **Assignment task 2**

Title:

Assignment 2

Description:

This is a group assignment. It provides an opportunity for you to apply data communications concepts to a practical networking example. You will be required to analyse a case study and make networking recommendations based on the user requirements. This assignment will also allow you to present your solutions in a formal report format. **FIT2008 will be required to complete an additional task within this assignment relating to wide area networking aspect of the example.**

Weighting:

20%

Criteria for assessment:

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. Presentation - that you have presented your answers in a suitably formatted report style.
3. Use of evidence and argument - you are able to explain your position by using logical argument drawing on the theory presented in the unit.

A marking guide will be provided on the unit website detailing the over all marks distribution and for allocating marks in a way that recognizes different contributions of group members for this assessment.

Due date:

Mon 11/Oct, 12PM

- **Assignment task 3**

Title:

Hands-on Lab Practical

Description:

Students will be asked to perform a set of networking tasks in the lab and note their results. The results will be assessed.

Weighting:

5%

Criteria for assessment:

Completeness - that you have answered all parts of each question. Presentation - that you have presented your answers in a suitably formatted report style.

Due date:

During the week starting from 6/Sep (Semester teaching week 07)

Examinations

- **Examination 1**

  Weighting:
  > 50%

  Length:
  > 2 hours

  Type (open/closed book):
  > closed book

  Electronic devices allowed in the exam:
  > Only non-programmable calculators will be allowed in the exam.

- **Examination 2**

  Weighting:
  > 10%

  Length:
  > 1 hour

  Type (open/closed book):
  > Closed book

  Electronic devices allowed in the exam:
  > Only non-programmable calculators will be allowed in the exam.

  Remarks:
  > This will be the mid-term (unit) test. It will be conducted during the lecture of Semester teaching week08.

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 of 5% per day or part thereof including Saturday and Sunday.

Assignments received later than one week after the due date will not normally be accepted.

Return dates

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

Feedback

Types of feedback you can expect to receive in this unit are:

Informal feedback on progress in labs/tutes

Graded assignments with comments

Test results and feedback

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