



MONASH University

**FIT5010**  
**Advanced internet protocols and applications**

**Unit Guide**

**Semester 2, 2009**

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 : 14 Jul 2009*

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# **FIT5010 Advanced internet protocols and applications - Semester 2, 2009**

## **Chief Examiner:**

**Professor Balasubramaniam Srinivasan**

Professor, and Head of School

Phone: +61 3 990 31333 +61 3 990 55222

Fax: +61 3 990 55157

## **Lecturer(s) / Leader(s):**

### **Caulfield**

**Professor Balasubramaniam Srinivasan**

Professor, and Head of School

Phone: +61 3 990 31333 +61 3 990 55222

Fax: +61 3 990 55157

## Introduction

The subject will cover the need for protocols and describe in detail few fundamental and popular protocols that are used to operate the Internet and intranets. A selection of interesting and important applications where these protocols are used will be discussed.

## Unit synopsis

In-depth coverage of the protocols used to operate the Internet and intranets, and a selection of major applications, including specific implementations of the protocols and systems. The topics include: Advanced Internet Addressing: IPv6, subnetting, supernetting. TCP Performance and Enhancements: Reno, New-Reno, Fast Retransmit and Recovery, etc. Unicast and multicast routing protocols: BGP4, OSPF, MOSPF, DVMRP, etc. Messaging systems: SMTP, MIME, POP3, IMAP, World Wide Web systems: client-server implementations, HTTP, Real Time Protocols: RTP, RTCP, RSVP. Security and Firewall. Quality of Service issues: DiffServ and IntServ. Network management and Remote File activities.

## Learning outcomes

At the completion of this units students will:

1. have a well-developed conceptual framework, enabling them to keep pace with developments in the rapidly changing field of network computing;
2. have a thorough understanding of one or more specialised areas of study within network computing;
3. be familiar with using current technology, systems and software relevant to network computing;
4. be able to practise professionally as a network computing specialist.

## Contact hours

2 hours of lectures/week, 2 hours of tutorials/week

## Workload

For on campus students, workload commitments are:

- two-hour lecture and
- two-hour discussion/tutorial class which requires **advance preparation**; it is expected that every student participates in the discussions and
- a minimum of 2-3 hours of personal study per one hour of contact time in order to learn and understand the issues discussed in the class and prepare for the discussion questions.
- You will need to allocate up to 6 hours per week in some weeks, for the assignment and the mid-semester test including time to read papers from the library as well as discussion with your group members on your project/research.

## Unit relationships

### Prerequisites

For MAIT students, [FIT9017](#), [FIT9018](#), [FIT9019](#), [FIT9030](#), [FIT9020](#) and [FIT4037](#).

## **Prohibitions**

CSE5803

## **Relationships**

FIT5010 is an elective unit in the degrees of Master of Digital Communications, Master of Information Technology, Master of Network Computing and Master of Telecommunications. Basic knowledge of Data Communication and Computer Networks is assumed. Knowledge of internetworking will be useful, but not essential.

## Teaching and learning method

Discussion classes are primarily used to reinforce and augment the concepts discussed in the lectures. The discussion class will have a number of questions and examples for which students have to identify answers. The discussion class will be structured as a group activity where the students will be divided into small groups of 2 to 3 and they are expected to derive answers to the questions and present them to the entire class. Hence it is expected that the students have to do some preparation before coming to the discussion class and actively participate in the discussions.

## 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.cc.monash.edu.au/>

## Unit Schedule

Week	Topic	Key dates
1	Introduction to Networking and Internet Protocols- Review	
2	Internet Address Classes+ Address Resolution	
3	Improved IP addressing	
4	IP, ICMP, IGMP and UDP	
5	Routing Protocols in internet	
6	EGP,BGP -Routing of Autonomous Systems	
7	OSPF Routing	
8	Dynamic IP allocation	
9	IP multicast	
10	Internet Applications	Mid Semester Test
Mid semester break		
11	Internet Applications - Migration to IPSecV6	Assignment Due
12	Internet Applications - VoIP, IPTV etc	
13	Revision and Summary	

## **Unit Resources**

### **Prescribed text(s) and readings**

B. Forouzan, TCP/IP Protocol Suite, McGraw-Hill, 2007 ( A number of copies are available at Monash Libraries)

### **Recommended text(s) and readings**

B. Forouzan, TCP/IP Protocol Suite, McGraw-Hill, 2007. M. Norris and S Pretty, Designing the total area network, John Wiley & Sons, 2000. L. A Chappell and E Tittel, Guide to TCP/IP, Course Technology, Thomson Learning, 2002. Geoff Huston, Vinton G. Cerf, Lyman Chapin, Internet Performance Survival Guide John Wiley & Sons; 2000 D. Comer (with D. Stevens), Internetworking with TCP/IP, 3 Volumes, Prentice-Hall, 2006. J. T. Moy OSPF: Anatomy of an Internet routing protocol, Addison-Wesley, 1998. B. Halabi, Internet Routing Architectures, Cisco Press, 1997. J. D. Wegner, Robert Rockell (Editor), IP Addressing and Subnetting, Including IPv6, Publishers' Group West; 1999 P. Loshin, IPv6 Clearly Explained, Morgan Kaufmann Publishers, Inc. 1999.

### **Study resources**

Study resources we will provide for your study are:

A condensed version of lecture notes, assignment/project descriptions and some related references will be provided. A number of copies of both the prescribed text and recommended texts are available in Monash libraries. Also the students need to use the Monash libraries to gathering information for the assignment/project.

## Assessment

### Overview

Class Test: 25%; Assignment: 25%; Examination: 50%.

### 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 44% then a mark of no greater than 44-N will be recorded for the unit.

One mid-semester test (25%), one assignment (25%) and a final examination (50%). To pass this unit you must achieve all the following:

- Attempt ALL the three assessment components; AND
- achieve no less than 40% of the possible marks in the examination; AND
- achieve no less than 50% of the total possible marks.

### 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:**

Practical Project/Case Study

**Description:**

The description of possible practical project and/or topics of case studies will be provided in week 3 of the discussion class. The topics will be allocated in a random fashion.

**Weighting:**

25%

**Due date:**

Week 11 of the semester



## Examination

- **Weighting:** 50  
**Length:** 2 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 NOT be graded.

## 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