



MONASH University
Information Technology

FIT2020
Network architecture

Unit Guide

Semester 1, 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.

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FIT2020 Network architecture - Semester 1, 2011

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 university's computer systems through an internet service provider is compulsory for distance education students.

Mode of Delivery

- Gippsland (Day)
- Gippsland (Off-campus)
- South Africa (Day)

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

Prohibitions

GCO3824

Prerequisites

One of [FIT1031](#), [FIT1005](#) or GCO3812 or equivalent

Chief Examiner

Iqbal Gondal

Campus Lecturer

Gippsland

Iqbal Gondal

Learning Objectives

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

- describe the ISO OSI reference model;
- analyse physical layer for networking;
- understand the architecture of data link layer for networking;
- analyse the main functions and design issues of the network layer;

describe the operation of IPv6;

- analyse the operation of TCP;
- understand integrated and differentiated services architecture;
- understand network management architecture;
- understand the basic concepts of multimedia communications and QoS.

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

Assessment Task	Value	Due Date
Assignment 1	15%	17th April 2011
Assignment 2	25%	29th May 2011
Examination 1	60%	To be advised

Teaching Approach

Lecture and tutorials or problem classes

The teaching and learning approach provides facilitated learning, practical exploration and peer learning, equipping you with the ability to apply skills upon completion

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
- 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

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

Wireshark free software from website (wireshark.org)

Recommended Resources

Unit Schedule

Week	Date*	Activities	Assessment
0	21/02/11	Orientation week	No formal assessment or activities are undertaken in week 0
1	28/02/11	Concepts of Protocols and Layered Architecture	
2	07/03/11	Physical Layer: Data and Signals a Theoretical Concepts	
3	14/03/11	Physical layer: Transmission Media	
4	21/03/11	Data Link layer: Communication Techniques	
5	28/03/11	Data link layer: HDLC	
6	04/04/11	WAN: Circuit and Packet Switched	
7	11/04/11	Routing Schemes and congestion Control	Assignment 01 due
8	18/04/11	Internetworking and IP	
Mid semester break			
9	02/05/11	Internetworking and IP Version 6 (IPv6)	
10	09/05/11	Internetworking Operation	
11	16/05/11	Transport Layer Operation: TCP and UDP	
12	23/05/11	Application layer: Network Management and Multimedia	Assignment 02 due
	30/05/11	SWOT VAC	No formal assessment is undertaken SWOT VAC

*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.

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:

Assignment 1

Description:

This assignment will test concepts of layered approach, physical and data link layers

Weighting:

15%

Criteria for assessment:

Student should demonstrate skills in OSI model, internetworking, physical & data link layers

Due date:

17th April 2011

- **Assessment task 2**

Title:

Assignment 2

Description:

This assignment will test concepts of wide area networks, routing protocols, transport layer, 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%

Criteria for assessment:

Students should demonstrate skills in WAN, routing protocols, transport layer, network management and application layer.

Due date:

29th May 2011

Examinations

- **Examination 1**

Weighting:

60%

Length:

3 hours

Type (open/closed book):

Closed book

Electronic devices allowed in the exam:

None

Assignment submission

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.

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

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>)

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.

READING LIST:

- William Stallings, *Data Communications and Networking*, Prentice Hall, 8th Edition, 2007
- Kevin Brown and Leann Christianson, *Opnet Lab Manual – Data and Computer Communications*. 7/e.