



**MONASH** University  
Information Technology

**FIT2019**  
**Network standards and specifications**

**Unit Guide**

**Semester 2, 2012**

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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# **FIT2019 Network standards and specifications - Semester 2, 2012**

This unit introduces the idea of standards and the standardisation process within the networking and data communications area. It follows on from the core unit [FIT1005](#) Networks and Data Communications with a focus on the: types of standards commonly found in information technology; creation, application and maintenance of networking standards; network protocol families, their interdependencies and sequence of development; methods used to define and maintain standards; composition and operation of the various national and international standards organisations; review of some key networking protocol standards and implementation issues.

## **Mode of Delivery**

Caulfield (Day)

## **Contact Hours**

2 hrs lectures/wk, 2 hrs laboratories/wk

## **Workload**

Students will be expected to spend a total of 12 hours per week during semester on this unit as follows:

*For on-campus students:*

Lectures: 2 hours per week

Tutorials/Lab Sessions: 2 hours per week per tutorial

and up to an additional 8 hours in some weeks for completing lab and project work, private study and revision.

*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 CSE2318 or CSE3318 or equivalent

### **Chief Examiner**

[Dr Jefferson Tan](#)

### **Campus Lecturer**

## **Caulfield**

**Jefferson Tan**

# Academic Overview

## Outcomes

At the completion of this unit students will:

- have detailed understanding of families of network protocols and their interdependencies, and developed skills in their application;
- understand the historical development of key internet protocols;
- be familiar with the source documents and specifications used to define key internet protocols, and developed skills in their usage;
- be familiar with the common methods used to define and promulgate network protocols
- be able to identify the national and international organisations whose roles involve the formation of standards in this area;
- be able to comprehend the notation used in network standard definitions including formal data and structure definition languages such as EBNF, ASN.1, SGML or XML, and developed skills in using this notation;
- have practical experience of methods used to capture and analyse network protocol packets.

## 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%

| <b>Assessment Task</b>                        | <b>Value</b> | <b>Due Date</b>  |
|---|--------------|--|
| Tutorial Assessment 1                         | 10%          | Week 3 tutorial  |
| Tutorial Assessment 2                         | 10%          | Week 7 tutorial  |
| Study of a Specific Network Protocol Standard | 20%          | Presentation in Week 12 tutorial; Report due Friday 19 October 2012, 4pm |
| Examination 1                                 | 60%          | To be advised  |

## Teaching Approach

### Lecture and tutorials or problem classes

The teaching and learning approach provides facilitated learning in theoretical, historical and practical aspects of the subject. Practical exploration as well as logical analysis are highly encouraged, particularly through assessment tasks.

## 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

Previous feedback highlighted in-depth analysis in the lectures, and this will be continued and further improved where possible.

If you wish to view how previous students rated this unit, please go to  
<https://emuapps.monash.edu.au/unitevaluations/index.jsp>

## Required Resources

Please check with your lecturer before purchasing any Required Resources. Limited copies of prescribed texts are available for you to borrow in the library, and prescribed software is available in student labs.

Request for Comments (RFCs) online, depending on which particular one is being studied: <http://www.faqs.org/rfcs/>

## Prescribed text(s)

Limited copies of prescribed texts are available for you to borrow in the library.

Douglas E. Comer. (2006). *Internetworking with TCP/IP: Principles, Protocols and Architecture, Vol. 1*. (5th) Pearson Prentice Hall (ISBN: 0-13-198069-6).

## Recommended Resources

The following software resources will be helpful:

- VMware Workstation, Player or Fusion, or similar virtualization platforms, to facilitate experimentation. Oracle VirtualBox is a free alternative, but is not identical with VMware products, and documentation for one is distinct from the other.
- Ubuntu Linux on a virtual machine, also for experimentation. Other operating systems may serve, depending on what protocols are being studied - freely available from <http://www.ubuntu.com/download/ubuntu/download>.
- Wireshark for packet capture and protocol analysis - installed in the lab but also freely available from <http://www.wireshark.org/download.html>.

## Additional subject costs

VMware Fusion is the recommended hypervisor for Mac OS X users, but it is a commercial product sold by VMware. Oracle VirtualBox is a free alternative, but is not identical with VMware products, and documentation for one is distinct from the other.

## Examination material or equipment

Students are not to resort to material or equipment in the exam other than the exam papers that facilitators will be providing and writing instruments (ballpoint pen) that the students are expected to bring.

## Unit Schedule

| Week | Activities                            | Assessment  |
|------|---------------------------------------|---|
| 0    |                                       | No formal assessment or activities are undertaken in week 0   |
| 1    | Introduction                          |   |
| 2    | Network Protocols                     |   |
| 3    | Layered Protocols                     | Tutorial Assessment 1 in Week 3 tutorial  |
| 4    | Data Notation Standards               |   |
| 5    | State Machines                        |   |
| 6    | Standards and Standards Organizations |   |
| 7    | Physical Layer Standards              | Tutorial Assessment 2 in Week 7 tutorial  |
| 8    | Network Access Layer Standards        |   |
| 9    | Internet Layer Standards              |   |
| 10   | Transport Layer Standards             |   |
| 11   | Application Layer Standards           |   |
| 12   | Other Standards and Winding Up        | Presentation in Week 12 tutorial; Report due Friday 19 October 2012, 4pm  |
|      | SWOT VAC                              | No formal assessment is undertaken in SWOT VAC  |
|      | Examination period                    | LINK to Assessment Policy:<br><a href="http://policy.monash.edu.au/policy-bank/academic/education/assessment/assessment-in-coursework-policy.html">http://policy.monash.edu.au/policy-bank/academic/education/assessment/assessment-in-coursework-policy.html</a> |

\*Unit Schedule details will be maintained and communicated to you via your MUSO (Blackboard or Moodle) learning system.



# Assessment Requirements

## Assessment Policy

Faculty Policy - Unit Assessment Hurdles

(<http://www.infotech.monash.edu.au/resources/staff/edgov/policies/assessment-examinations/unit-assessment-hu>)

Academic Integrity - Please see the Demystifying Citing and Referencing tutorial at

<http://lib.monash.edu/tutorials/citing/>

## Assessment Tasks

### Participation

- **Assessment task 1**

**Title:**

Tutorial Assessment 1

**Description:**

This will include a possible mix of multiple choice, short answer questions or hands-on exercises.

**Weighting:**

10%

**Criteria for assessment:**

Students will be assessed individually for correct work.

**Due date:**

Week 3 tutorial

- **Assessment task 2**

**Title:**

Tutorial Assessment 2

**Description:**

This will include a possible mix of multiple choice, short answer questions or hands-on exercises.

**Weighting:**

10%

**Criteria for assessment:**

Students will be assessed individually for correct work.

**Due date:**

Week 7 tutorial

- **Assessment task 3**

**Title:**

Study of a Specific Network Protocol Standard

**Description:**

Students will individually conduct an in-depth study of a network protocol standard.

Allowed topics will be posted in Moodle. The deliverable is a brief technical report and a demo/presentation in Week 12.

**Weighting:**

## Assessment Requirements

20%

### Criteria for assessment:

Half of the marks will come from the technical report, while the other half will come from the demo/presentation.

The technical report will be assessed on the level of difficulty involved, amount and quality of reading involved, logical analysis of the topic, and good writing. The demo/presentation will be assessed on the level of difficulty involved, successful demonstration, and good presentation skills, including Q & A.

### Due date:

Presentation in Week 12 tutorial; Report due Friday 19 October 2012, 4pm

### Remarks:

Submission of the report is in two modes:

- ◆ electronic, as a PDF or .doc file, via Damocles,  
<http://vipr.infotech.monash.edu.au/damocles/submit/>
- ◆ **and** by printout, with a signed and completely filled in cover sheet, submitted via labelled boxes in the School office.

Students should consult the Faculty's general style guide:

<http://www.infotech.monash.edu.au/resources/student/assignments/caulfield-styleguide.pdf>

Note that **plagiarism is not acceptable**. Good technical writing, respectful of intellectual properties of other people, is a skill that can be learned. The university library provides Learning Skills advisers for drop-in sessions, as well as a Learning Skills Online website, to assist students who are willing to seek assistance. For more information, please visit this site:

<http://www.lib.monash.edu/learning-skills/>

## Examinations

### • Examination 1

#### Weighting:

60%

#### Length:

3 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).

## **Online submission**

If Electronic Submission has been approved for your unit, please submit your work via the VLE site for this unit, which you can access via links in the my.monash portal.

## **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.

## **Resubmission of assignments**

Students may resubmit an assignment as long as the deadline has yet to lapse.

## **Referencing requirements**

Proper citation and referencing is required in the project. This means using a proper style of referencing, as well as actually citing the work of others. The style guide above can assist in the reference style, at least. Additionally, it must be clear that copying entire phrases of text requires quoting the text, and that paraphrasing is preferred. Also, regardless of which of these two approaches is taken, citing the source is always required.

See Monash University Library link: <http://www.lib.monash.edu.au/tutorials/citing/>

## 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](http://www.monash.edu.au/students). For Sunway see <http://www.monash.edu.my/Student-services>, and for South Africa see <http://www.monash.ac.za/current/>

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. At Sunway, visit the Library and Learning Commons at <http://www.lib.monash.edu.my/>. At South Africa visit <http://www.lib.monash.ac.za/>.

Academic support services may be available for students who have a disability or medical condition. Registration with the Disability Liaison Unit is required. Further information is available as follows:

- Website: <http://monash.edu/equity-diversity/disability/index.html>;
- Email: [dlu@monash.edu](mailto:dlu@monash.edu)
- Drop In: Equity and Diversity Centre, Level 1 Gallery Building (Building 55), Monash University, Clayton Campus, or Student Community Services Department, Level 2, Building 2, Monash University, Sunway Campus
- Telephone: 03 9905 5704, or contact the Student Advisor, Student Community Services at 03 55146018 at Sunway

## Reading list

- William Stallings, *Data and Computer Communications 8E*, Prentice Hall, 2007.
- William Stallings, *Wireless Communications & Networks 2E*, Prentice Hall, 2004.
- Cisco Systems Inc., *Internetworking Technologies Handbook 4E*, Cisco Systems, 2004.