FIT2019
Network standards and specifications

Unit Guide

Semester 2, 2011

Last updated: 22 Aug 2011

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FIT2019 Network standards and specifications - Semester 2, 2011

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

Learning Objectives

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%

Assessment Task	Value	Due Date
Assessable Tutorial Quiz 1	5%	Week 3 tutorial
Assessable Tutorial Quiz 2	10%	Week 6 Tutorial
Assessable Tutorial Quiz 3	10%	Week 9 Tutorial
Study of a Specific Network Protocol Standard	15%	Friday of Week 12 at 4 pm
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

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

Required Resources

Prescribed text(s) and readings

- Douglas E. Comer, Internetworking with TCP/IP: Principles, Protocols and Architecture, Vol. 1, 5E, Pearson Prentice Hall, 2006, ISBN 0-13-198069-6.
- Request for Comments (RFCs) online, depending on which particular one is being studied:

  ◆http://www.faqs.org/rfcs/

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 fromhttp://www.ubuntu.com/download/ubuntu/download.
- Wireshark for packet capture and protocol analysis - freely available fromhttp://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.

Unit Schedule

Week	Activities	Assessment
0		No formal assessment is undertaken in Week 0
1	Introduction	
2	Network Protocols	
3	Layered Protocols	Assessable Tutorial Quiz 1: Week 3
4	Data Notation Standards	
5	State Machines	
6	Standards and Standards Organizations	Assessable Tutorial Quiz 2: Week 6
7	Physical Layer Standards	
8	Network Access Layer Standards	
9	Internet Layer Standards	Assessable Tutorial Quiz 3: Week 9
10	Transport Layer Standards	
11	Application Layer Standards	
12	Other Standards and Winding Up	Assignment Due Friday Week 12 at 4pm
	SWOT VAC	No formal assessment is undertaken in SWOT VAC
	Examination period	LINK to Assessment Policy: http://policy.monash.edu.au/policy-bank/academic/education/assessment/assessment-in-coursework-policy.html

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

Assessment Requirements

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:
  > Assessable Tutorial Quiz 1

  Description:
  > This quiz includes multiple choice questions, practical problem solving questions, and possibly some essay type questions.

  Weighting:
  > 5%

  Criteria for assessment:
  > Correct answers to the questions and compliance with exercise tasks to be assessed.

  Due date:
  > Week 3 tutorial

- **Assessment task 2**

  Title:
  > Assessable Tutorial Quiz 2

  Description:
  > This quiz includes multiple choice questions, practical problem solving questions, and possibly some essay type questions.

  Weighting:
  > 10%

  Criteria for assessment:
  > Correct answers to the questions and compliance with exercise tasks to be assessed.

  Due date:
  > Week 6 Tutorial

- **Assessment task 3**

  Title:
  > Assessable Tutorial Quiz 3

  Description:

This quiz includes multiple choice questions, practical problem solving questions, and possibly some essay type questions.

Weighting:

10%

Criteria for assessment:

Correct answers to the questions and compliance with exercise tasks to be assessed.

Due date:

Week 9 Tutorial

- **Assessment task 4**

Title:

Study of a Specific Network Protocol Standard

Description:

Students will individually conduct an in-depth study of a network protocol standard. The deliverable is a brief technical report and a practical demo.

The project should involve extensive reading, testing of software implementations, and sound, technical writing.

Weighting:

15%

Criteria for assessment:

Criteria include the level of difficulty involved, a logical evaluation of the subject matter, practical experimentation and writing up well. More weight will be given to the technical content and substance of the submitted work.

Due date:

Friday of Week 12 at 4 pm

Remarks:

Submission of the report is in two modes:

- ♦ electronic, as a PDF or .doc file, via Damocles,
  http://viper.infotech.monashe.du.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).

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-pc
- 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 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.

Other recommended references:

- 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.