FIT9020
Data communications

Unit Guide

Semester 1, 2011

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FIT9020 Data communications - Semester 1, 2011

The unit will introduce students to fundamentals of data and computer communications method and techniques. It covers: ISO and TCP/IP layered protocols; physical layer concepts: data transmission methods, signal encoding and digital data communication techniques; data link control protocol, multiplexing methods; WAN and LAN networking fundamentals; internetworking and transport protocols.

Mode of Delivery
Caulfield (Evening)

Contact Hours
2 hrs lectures/wk, 2 hrs laboratories/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.

Unit Relationships

Prohibitions
CSE9801, BUS3150, CSE2318, CSE3318, FIT1005

Prerequisites
FIT9018

Chief Examiner
Andrew Paplinski

Campus Lecturer
Caulfield
Andrew P Paplinski
Learning Objectives

At the completion of this unit students will:

- understand layered ISO and TCP/IP protocols;
- have knowledge of data transmission technology, signal encoding techniques and data link control protocols;
- understand multiplexing methods and technologies;
- understand the functions and architectures of LAN and WAN.

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

2. 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%

<table>
<thead>
<tr>
<th>Assessment Task</th>
<th>Value</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignment 1</td>
<td>20%</td>
<td>Week 6</td>
</tr>
<tr>
<td>Assignment 2</td>
<td>20%</td>
<td>Week 11</td>
</tr>
<tr>
<td>Examination 1</td>
<td>60%</td>
<td>To be advised</td>
</tr>
</tbody>
</table>

Teaching Approach

Lecture and tutorials or problem classes

This teaching and learning approach provides facilitated learning, practical exploration and peer learning.

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.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


Wireshark. Packet Analysis Software

Unit Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Date*</th>
<th>Activities</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>21/02/11</td>
<td></td>
<td>No formal assessment or activities are undertaken in week 0</td>
</tr>
<tr>
<td>1</td>
<td>28/02/11</td>
<td>Introduction to data communications</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>07/03/11</td>
<td>Application Layer</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>14/03/11</td>
<td>Physical layer</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>21/03/11</td>
<td>Data Link Layer</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>28/03/11</td>
<td>Network and Transport Layers - part 1</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>04/04/11</td>
<td>Network and Transport Layers - part 2</td>
<td>Assignment 1 due</td>
</tr>
<tr>
<td>7</td>
<td>11/04/11</td>
<td>Local area network</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>18/04/11</td>
<td>Wireless Local Area Networks</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mid semester break</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>02/05/11</td>
<td>Metropolitan and wide area networks</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>09/05/11</td>
<td>Backbones networks</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>16/05/11</td>
<td>The Internet</td>
<td>Assignment 2 due</td>
</tr>
<tr>
<td>12</td>
<td>23/05/11</td>
<td>Network Security</td>
<td></td>
</tr>
</tbody>
</table>
*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:**
  Assignment1
  
  **Description:**
  Assignment 1 will include the material covered in weeks 1-5. In particular questions will be related to: components of networks, type of networks, internet models, message transmission using layers, application layer architectures, physical and data link layers.
  
  **Weighting:**
  20%
  
  **Criteria for assessment:**
  The criteria used to assess submissions are:
  
  - Correctness and understanding - there may be more than one "right" answer in many cases.
  - Completeness - that you have answered all parts of each question.
  - Presentation - that you have presented your answers using the appropriate method.
  - Use of evidence and argument - you are able to explain your position by using logical argument.
  
  **Due date:**
  Week 6

- **Assessment task 2**
  
  **Title:**
  Assignment 2
  
  **Description:**
Assignment 2 will include the material covered in weeks 6-10. In particular, the questions will be related to network and transport layers, structures and functions of local area, backbone and wide area networks.

Weighting:
20%

Criteria for assessment:
The criteria used to assess submissions are:

♦ Correctness and understanding - there may be more than one "right" answer in many cases.
♦ Completeness - that you have answered all parts of each question.
♦ Presentation - that you have presented your answers using the appropriate method.
♦ Use of evidence and argument - you are able to explain your position by using logical argument.

Due date:
Week 11

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.


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)
- Special Consideration (http://www.policy.monash.edu/policy-bank/academic/education/assessment/special-consideration-policy.html)
- 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/);
- and

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.

Recommended Reading