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FIT9135 Data communications - Semester 1, 2015

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)

Workload Requirements

Minimum total expected workload equals 12 hours per week comprising:

(a.) Contact hours for on-campus students:

- Two hours of lectures
- One 2-hour laboratory

(b.) Additional requirements (all students):

- A minimum of 8 hours independent study per week for completing lab and project work, private study and revision.

See also Unit timetable information

Unit Relationships

Prohibitions

FIT9020, FIT5135

Chief Examiner

Dr Guido Tack

Campus Lecturer

Caulfield

Guido Tack

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 the Student Evaluation of Teaching and Units (SETU) survey. 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, see:

www.monash.edu.au/about/monash-directions/ and on student evaluations, see: www.policy.monash.edu/policy-bank/academic/education/quality/student-evaluation-policy.html
Academic Overview

Learning Outcomes

At the completion of this unit, students should be able to:

- describe the underlying fundamental theories and models of transmitting data across a communication channel;
- identify and describe the concepts and theories of standard network protocols;
- describe the functions and architectures of LAN and WAN;
- evaluate several different design options and formulate a simple network design.
## Unit Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Activities</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td>No formal assessment or activities are undertaken in week 0</td>
</tr>
<tr>
<td>1</td>
<td>Introduction to Data Communications</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Application Layer</td>
<td>Weekly Pre-lecture Online Quizzes (Weeks 2 to 12). Weekly Peer Instruction Participation in Lecture Sessions (Weeks 2 to 11)</td>
</tr>
<tr>
<td>3</td>
<td>Physical Layer</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Data Link Layer</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Network and Transport Layers - Part 1</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Network and Transport Layers - Part 2</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Local Area Networks</td>
<td>Assignment 1 due 26 April 2015</td>
</tr>
<tr>
<td>8</td>
<td>Wireless Local Area Networks</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Metropolitan, Wide Area and Backbone Networks</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>The Internet</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Network Security</td>
<td>Assignment 2 due 24 May 2015</td>
</tr>
<tr>
<td>12</td>
<td>Review</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SWOT VAC</td>
<td>No formal assessment is undertaken during SWOT VAC</td>
</tr>
</tbody>
</table>

*Unit Schedule details will be maintained and communicated to you via your learning system.

## Teaching Approach

**Lecture and tutorials or problem classes**

This teaching and learning approach helps students to initially encounter information at lectures, discuss and explore the information during tutorials, and practice in a hands-on lab environment.

## Assessment Summary

Examination (3 hours): 50%; In-semester assessment: 50%

<table>
<thead>
<tr>
<th>Assessment Task</th>
<th>Value</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-lecture Online Quizzes</td>
<td>5%</td>
<td>Weekly (Weeks 2 to 12). The exact due date will be announced as Moodle’s quiz notification</td>
</tr>
<tr>
<td>Peer Instruction Participation in Lecture Sessions</td>
<td>5%</td>
<td>Weekly Lecture Sessions (Weeks 2 to 11)</td>
</tr>
<tr>
<td>Unit Schedule</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------</td>
<td>--</td>
<td>----</td>
</tr>
<tr>
<td>Assignment 1</td>
<td>20%</td>
<td>26 April 2015</td>
</tr>
<tr>
<td>Assignment 2</td>
<td>20%</td>
<td>24 May 2015</td>
</tr>
<tr>
<td>Examination 1</td>
<td>50%</td>
<td>To be advised</td>
</tr>
</tbody>
</table>

Assessment Requirements

Assessment Policy

Faculty Policy - Unit Assessment Hurdles

Academic Integrity - Please see resources and tutorials at
http://www.monash.edu/library/skills/resources/tutorials/academic-integrity/

Assessment Tasks

Participation

• Assessment task 1

Title: Pre-lecture Online Quizzes

Description: Students will be asked to complete online quizzes in Moodle based on the prescribed reading of the week.

Weighting: 5%

Criteria for assessment: The average marks across a number of quizzes from Weeks 2 to 12.

Due date: Weekly (Weeks 2 to 12). The exact due date will be announced as Moodle’s quiz notification

• Assessment task 2

Title: Peer Instruction Participation in Lecture Sessions

Description: Student participation through the response gathering system will be recorded.

Weighting: 5%

Criteria for assessment: The average mark across all lectures from Weeks 2 to 11. Student answers during the peer instruction session will not be graded based on correctly answering questions. The grade will be based on participation. Marks for a lecture will be awarded based on how many of the questions presented in the lecture are answered.

Due date: Weekly Lecture Sessions (Weeks 2 to 11)

• Assessment task 3

Title: Assignment 1

Description: Assignment 1 will include the material covered in Weeks 1 to 5. In particular, the
Assignment will consist of questions related to components of networks, types of networks, internet models, message transmission using layers, application layer architectures, physical and data link layers. The format of the student submission will be a written report.

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:
26 April 2015

Assessment task 4

Title:
Assignment 2

Description:
Assignment 2 will include the material covered in Weeks 6 to 10. In particular, the assignment will consist of questions related to network and transport layers, structures and functions of local area, backbone and wide area networks. The format of the student submission will be a written report.

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:
24 May 2015

Examinations

- Examination 1

Weighting:
50%

Length:
3 hours

Type (open/closed book):
Closed book
Electronic devices allowed in the exam:
None

**Learning resources**

Monash Library Unit Reading List (if applicable to the unit)
http://readinglists.lib.monash.edu/index.html

**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

**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.monash.edu.au/exams/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.

**Assignment submission**

It is a University requirement 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 electronic submission). Please note that it is your responsibility to retain copies of your assessments.

**Online submission**

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

**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.

Wireshark, Packet Analysis Software freely available from http://www.wireshark.org/
Prescribed text(s)

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


Additional subject costs

On-campus students are required to purchase a Turning Point clicker from the Campus Bookstore or directly from the Australian Distributor.
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: www.policy.monash.edu.au/policy-bank/academic/education/index.html

Faculty resources and policies

Important student resources including Faculty policies are located at http://intranet.monash.edu.au/infotech/resources/students/

Graduate Attributes Policy

http://www.policy.monash.edu/policy-bank/academic/education/management/monash-graduate-attributes-policy.html

Student Charter


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 http://www.monash.edu.au/students. For Malaysia see http://www.monash.edu.my/Student-services, and for South Africa see http://www.monash.ac.za/current/.

Monash University Library

The Monash University Library provides a range of services, resources and programs that enable you to save time and be more effective in your learning and research. Go to www.lib.monash.edu.au or the library tab in my.monash portal for more information. At Malaysia, visit the Library and Learning Commons at http://www.lib.monash.edu.my/. At South Africa visit http://www.lib.monash.ac.za/.

Disability Liaison Unit

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://www.monash.edu/equity-diversity/disability/index.html
- Telephone: 03 9905 5704 to book an appointment with a DLO; or contact the Student Advisor, Student Community Services at 03 55146018 at Malaysia
- Email: dlu@monash.edu
- Drop In: Equity and Diversity Centre, Level 1, Building 55, Clayton Campus, or Student Community Services Department, Level 2, Building 2, Monash University, Malaysia Campus