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**FIT5034 Network administration and management - Semester 1, 2011**

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FIT5034 Network administration and management - Semester 1, 2011

The unit will provide students with fundamentals and theoretical foundations of network administration, management and documentation. Specific areas include local, wide area, and real-time networks. Related protocols such as TCP/IP, ICMP, IPSEC, CSMA/CD, token-passing, frame relay, ATM, SAN and VoIP. The network administrators function and responsibilities relating to network issues such as planning, implementation, fault diagnosis fine tuning and recovery. Standards for network management - SNMP, RMONs, Protocol analysers, CMIP, ITU / TMN standards, MIBs, DMI, remote management in-band and out-of-band.

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. This will include:

- 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.

Unit Relationships

Prohibitions

CPE5013

Chief Examiner

Jefferson Tan

Campus Lecturer

Caulfield

Jefferson Tan
Learning Objectives

At the completion of this unit students will have -

- exposure to a wide range of contemporary networking protocols and technologies at a level required from network management perspective;
- an in-depth understanding of key network management concepts, protocols, technologies, protocol analysis and practices;
- an understanding of the role of a network administrator through theory and hands-on work involving the use of software tools, simulations, and configuring core networking hardware;
- ability to adopt a problem solving approach;
- developed communications skills and accept the code of professional conduct and practice through short presentations and group work.

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: 50%; In-semester assessment: 50%

<table>
<thead>
<tr>
<th>Assessment Task</th>
<th>Value</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laboratory Assessments</td>
<td>20%</td>
<td>The assessments will be held during tutorials of Weeks 6 and 9.</td>
</tr>
<tr>
<td>Network administration project</td>
<td>30%</td>
<td>Practical outcomes will be demonstrated during tutorials on Week 12.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reports will be due on the Friday of Week 12.</td>
</tr>
</tbody>
</table>

Teaching Approach

Lecture and tutorials or problem classes

Lectures will cover theories, standards and practices, which will be reinforced by tutorial/labs. Additionally, tutorial/labs will hopefully engage students in gaining practical skills and experience.
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
- Test results and feedback
- 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.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

Required Resources

You will need access to the following software:

- A Freeware Unix of some recent flavor, preferably on a virtual machine platform such as VMware
- Web browser for online reading references, with the typical add-ons to read PDFs, Flash, etc.
- A word processor for writing up assignments, e.g., Microsoft Word, OpenOffice Writer.
- A tool for creating diagrams, e.g., Microsoft Powerpoint, OpenOffice Impress, MS Visio, Dia, etc.
- Software for generating PDF output (Adobe Acrobat file)

PDFCreator and freeware Unix flavors such as Linux or FreeBSD, and various alternative products, can be downloaded from the Internet. Details will also be posted on the unit website.

VMware Player and Server for Windows and Linux are free to download, but VMware Fusion for Mac OS X is not. Free VM "appliances" can be downloaded from the VMware marketplace. Mac OS X uses can use the underlying UNIX, but some packages are not ported perfectly (if at all), and care must be taken not to ruin your Mac OS X configuration.

Using VMs is preferred, and is safer for the student, rather than installing Linux or BSD Unix directly onto your machine.
**Additional subject costs**

Desktops and networking equipment are provided for use during tutorial-labs in the Caulfield School of IT network laboratory for on-campus students. However, students will shoulder the cost of downloading documents and software from home. Students should own USB sticks and similar external storage media in order to store intermediate work, including configuration files and scripts, partial reports or entire virtual machine images, although the latter would typically require 2 to 4 GB of free space.

Information about computer use for students is available from the ITS Student Resource Guide in the Monash University Handbook. You will need to allocate up to 8 hours per week for reading and private study, including time for the use of a computer to access web-based discussion groups.

**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>No formal assessment or activities are undertaken in week 0</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>28/02/11</td>
<td>Introduction and Network Management Models</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>07/03/11</td>
<td>System and Network Components</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>14/03/11</td>
<td>Managing Hosts and Users</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>21/03/11</td>
<td>TCP/IP Network Administration</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>28/03/11</td>
<td>TCP/IP Network Services</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>04/04/11</td>
<td>Configuration and Change Management</td>
<td>assessed lab work</td>
</tr>
<tr>
<td>7</td>
<td>11/04/11</td>
<td>Accounting Management</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>18/04/11</td>
<td>Security Management</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>Performance Management</td>
<td>assessed lab work</td>
</tr>
<tr>
<td>10</td>
<td>09/05/11</td>
<td>Fault Management</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>16/05/11</td>
<td>Other Network Management Concerns</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>23/05/11</td>
<td>Research in Network Administration and Revisions</td>
<td>Project demos during tutorials, and report due Friday</td>
</tr>
<tr>
<td>30/05/11</td>
<td>SWOT VAC</td>
<td>No formal assessment is undertaken SWOT VAC</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: Laboratory Assessments

  Description: Two assessments with marking weights of 10% each will be administered during tutorials in the laboratory, covering theoretical and practical topics covered in previous weeks.

  Weighting: 20%

  Criteria for assessment: The assessment requires that exercises are correctly accomplished by individual students.

  Due date: The assessments will be held during tutorials of Weeks 6 and 9.

• Assessment task 2

  Title: Network administration project

  Description: This project will entail both practical and theoretical aspects of the unit. Students in groups, of at most three members each, will be required to build a small network, configured with a few basic network services. Concise documentation will also be required for submission. More details will be made available to students in Moodle by Week 4, but will include the following:

  1. A practical demo of the installation, configuration and operation of the network and its services.
  2. Students will be expected to answer questions during the demo.
  3. A concise report that documents the network will be submitted on the Friday of Week 12.

  Students will be given time to work on their project during some tutorial hours using lab equipment.

  Note that the network to be built may consist of physical or virtual machines, or a combination of both. There are obvious advantages to using virtual machines, and so that option is highly encouraged.

  Weighting: 30%

  Criteria for assessment: The outcome of practical work will be assessed during demos, while reports will be assessed separately. Demonstrations must show correct configuration, operation and, in
some cases, customization of network components, both hardware and software. Students will also be asked to answer questions to show an understanding of the components being demonstrated. The report will be assessed based on reasonable correctness of network design, choice of services and policies.

Due date:
Practical outcomes will be demonstrated during tutorials on Week 12. Reports will be due on the Friday of Week 12.

Remarks:
The report component of this project must be submitted electronically via Damocles: http://viper.infotech.monash.edu.au/damocles/submit/. Note the following:

♦ Damocles is not simply a submission system: it detects and rates plagiarism based on matches between assignments, across semesters, as well as with online sources.
♦ University policies on plagiarism must be followed. Failure to do so may constitute grounds for exclusion of the submitted report and/or failure in this unit.
♦ Electronically submitted documents must be in the following formats: Word 97/XP .doc (not .docx), RTF (rich text format) or non-scanned PDF (Adobe Acrobat).
♦ Multiple submissions are possible, with previous submissions to be overwritten, but only the latest submission will be marked.
♦ Non-compliant submissions will be rejected, and deadlines may not be extended accordingly, so students must verify that their documents are readable and compliant with one of the formats listed above.
♦ The Faculty cover sheet for assignments must be submitted separately: printed, filled out and signed, and dropped into a box labelled for this unit in Bldg H, Level 6, near the School's reception desk. It may alternatively be scanned and e-mailed to the lecturer with the subject heading "FIT5034 assignment cover sheet".

Examinations

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.
Referencing requirements

Reference sources used in the project, particularly in preparing the report, should be properly paraphrased as well as cited in the body of the report as well as in a separate Bibliography. In rare cases, the actual text from the source may be quoted and likewise cited in the body and the Bibliography. Failure to do so may be grounds for a case of plagiarism being brought up. This may result in the exclusion of the submitted assignment and/or failure in this unit.

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/)
- Orientation and Transition (http://www.infotech.monash.edu.au/resources/student/orientation/); 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.

Reading List

No particular textbook is required. Instead, several online and published materials are more than
sufficient for this unit, including these primary references: