



MONASH University

FIT5034
Network administration and management

Unit guide

Semester 1, 2009

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FIT5034 Network administration and management - Semester 1, 2009

Unit leader :

Jefferson Tan

Lecturer(s) :

Caulfield

- Jefferson Tan

Introduction

This unit guide contains information regarding the intended delivery of this unit. The synopsis, objectives, and broad assessment details for this unit are published in the official university handbook entry.

The sequence of lectures and topics, or the degree of emphasis on particular topics as implied by their inclusion in the topical outline in this unit guide, may be varied during the semester at the discretion of the chief examiner. However, such variations will never compromise the unit objectives.

Unit synopsis

The unit will provide students with fundamentals and theoretical foundations of Network Administration as well as practical skills needed to plan, provide and manage networks, by presentation of the following topics:

- Introduction to Network Administration.
- Review of IT System Components.
- Network System Management.
- Methods of Network Administration.
- Network Fault Diagnosis and Recovery.
- Network Performance and Tuning.
- Administration of Network Services.
- Network Security and Administration.
- Analytical System Administration.
- Network Simulation.
- Network Documentation.
- Future of Network Administration.

Learning outcomes

Knowledge and Understanding

After completing this unit, students will be able to:

- identify the tasks or roles required of network administrators;
- refine and extend existing knowledge of network technologies and their management;
- understand current developments and standards for network management;
- identify principles involved in system and network administration;

- apply these principles to practical situations;
- analyse and classify the requirements for management of networks;
- design and implement network management policies;
- identify and compare different network management techniques and strategies.

Practical Skills

After completing this unit students will have developed the skills required to:

- work with network management tools, their interface, capabilities and operation;
- be familiar with typical methods of documenting and modelling networks;
- effectively and efficiently setup networks and confirm correct operation;
- monitor networks and diagnose common network faults;
- construct test strategies and acceptance tests for networks.

Relationships, Communication and TeamWork

After completing this unit, students will:

- appreciate the need for cooperative management of networks and computer equipment;
- be able to Work effectively in groups to achieve a system implementation.

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

Prerequisites

For MAIT students, FIT9017, FIT9018, FIT9019, FIT9030, FIT9020 and FIT4037.

Relationships

You may not study this unit and CPE5013 in your degree.

Continuous improvement

Monash is committed to 'Excellence in education' (Monash Directions 2025 - <http://www.monash.edu.au/about/monash-directions/directions.html>) and strives for the highest possible quality in teaching and learning.

To monitor how successful we are in providing quality teaching and learning Monash regularly seeks feedback from students, employers and staff. One of the key formal ways students have to provide feedback is through Unit Evaluation Surveys. The University's Unit Evaluation policy (<http://www.policy.monash.edu/policy-bank/academic/education/quality/unit-evaluation-policy.html>) requires that every unit offered is evaluated each year. Students are strongly encouraged to complete the surveys as they are an important avenue for students to "have their say". The feedback is anonymous and provides the Faculty with evidence of aspects that students are satisfied and areas for improvement.

Faculties have the option of administering the Unit Evaluation survey online through the my.monash portal or in class. Lecturers will inform students of the method being used for this unit towards the end of the semester.

Student Evaluations

If you wish to view how previous students rated this unit, please go to <http://www.adm.monash.edu.au/cheq/evaluations/unit-evaluations/>

Unit staff - contact details

Unit leader

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Lecturer(s) :

Dr. Jefferson Tan

Lecturer

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Additional communication information

The best opportunity for discussing unit topics is through tutorials and face to face consultations. These are scheduled regularly during the semester. Additional consultation is possible, but please e-mail the lecturer or tutor in order to make an appointment.

The Blackboard/MUSO discussion tool (forum) is another option. In some situations, this will be more appropriate, particularly where the question may be relevant not only the student posing the question. The response time, however, may vary. Lecturers and tutors will endeavor to reply in a timely fashion, but there is no guarantee of immediate electronic replies after hours, whether by e-mail or Blackboard/MUSO.

Teaching and learning method

- On campus Lecture
- On campus Tutorial/Laboratory

Communication, participation and feedback

Monash aims to provide a learning environment in which students receive a range of ongoing feedback throughout their studies. You will receive feedback on your work and progress in this unit. This may take the form of group feedback, individual feedback, peer feedback, self-comparison, verbal and written feedback, discussions (on line and in class) as well as more formal feedback related to assignment marks and grades. You are encouraged to draw on a variety of feedback to enhance your learning.

It is essential that you take action immediately if you realise that you have a problem that is affecting your study. Semesters are short, so we can help you best if you let us know as soon as problems arise. Regardless of whether the problem is related directly to your progress in the unit, if it is likely to interfere with your progress you should discuss it with your lecturer or a Community Service counsellor as soon as possible.

Face to face consultation is generally best, particularly when discussing unit topics. Apart from scheduled consultation hours and tutorials, students may arrange for alternative appointments via e-mail, either with the lecturer or their tutor.

In some situations, Blackboard/MUSO forums via the Discussion Tool will be preferable, particularly where the discussion will benefit not only the student raising the question. While the lecturer and tutors will do their best in responding to forum posts in a timely fashion, there is no guarantee of immediate replies, particularly after hours.

Unit Schedule

Week	Topic	Key dates
1	Introduction to Network Administration	
2	IT System Components	
3	System Management	
4	Configuration Management	Quiz 1 during tutorials
5	TCP/IP Network Administration	
6	Methods of Network Administration	
Mid semester break		
7	Fault Management and Performance Management	Quiz 2 during tutorials
8	Desktop and Enterprise Management	
9	Network Security	
10	Enterprise & DeskTop Management	Quiz 3 during tutorials
11	Web Based Network Management	
12	Future of Network Administration	Project demos during tutorials, and report due Friday
13	Revision and Exam Preparation	

Unit Resources

Prescribed text(s) and readings

There are no required texts for this unit. Students are advised to refer to the **recommended reading** list shown below as specified for each lecture in the notes provided in MUSO.

Recommended text(s) and readings

- **Burgess M** *Principles of Network & System Administration* 2nd Ed. Wiley (2004) ISBN 0-470-86807-4. (<http://library.monash.edu.au/vwebv/holdingsInfo?bibId=2017671>)
- **Limonchelli, T. A., Hogan, C. J., Chalup, S. R.** *The Practice of System and Network Administration* (2nd Ed), Addison-Wesley, 2007, ISBN 0-321-49266-8. (<http://library.monash.edu.au/vwebv/holdingsInfo?bibId=2253326>)
- **Subramanian M.** *Network management: Principles and Practice* Addison-Wesley (2000) ISBN 0-201-35742-9.

- **Burke J.R.** *NETWORK MANAGEMENT Concepts and Practice* Pearson Prentice Hall (2004) ISBN 0-13-032950-9.
- **Stallings W.** *SNMP, SNMPv2, SNMPv3 & RMON I and II* 3rd Ed. Addison Wesley (1998) ISBN 0-201-48534-6.
- **Stallings W.** *Data and Computer Communications* 8th Ed. Prentice Hall (2007) ISBN 0-13-100681-9.
- **Mikalsen A., Borgesen P.** *Local Area Network Management, Design and Security* Wiley (2002) ISBN 0-471-49769-X.
- **Cernick P., Degner M., Kruepke K.** *Cisco IP Routing Handbook* M&T, IDG Books (2000) ISBN 0-7645-4695-3.

Required software and/or hardware

You will need access to the following software:

- A Freeware Unix of some recent flavor, e.g., KNOPPIX (Linux), FreeBSD, Fedora Core Linux [Note that Unix installations, whether installed or running from a live CD, typically include certain tools that we will use, e.g., BIND, sendmail, nslookup, tcpdump, wireshark, etc..]
- Web browser for online reading references
- A word processor for writing up assignments, e.g., Microsoft Word or OpenOffice.
- A vector graphics tool for creating diagrams, e.g., Microsoft Powerpoint or OpenOffice.
- PDFCreator for generating PDF output (Adobe Acrobat file), if using Microsoft Windows.

PDFCreator and freeware Unix flavors such as KNOPPIX and others mentioned can be downloaded from the Internet. The KNOPPIX ISO image must be burned into a CD in order to boot into KNOPPIX Linux. FreeBSD, Fedora Core Linux and other flavors of Linux must likewise be burned into a CD in order to install to one's hard drive. PDFCreator must be installed into one's Windows installation by an administrator.

Note that alternatives for the above may all exist from different sources, e.g., Adobe Acrobat Professional instead of PDFCreator, although the former is a commercial product (and is therefore not free).

Equipment and consumables required or provided

Students may use the facilities available in the computing labs. 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 use of a computer, including time for newsgroups/discussion groups.

Study resources

Study resources we will provide for your study are:

The FIT5034 web site on MUSO where unit outline, lecture slides, weekly tutorial exercises, assignment specifications, sample solutions and supplementary resource material will be available to registered students.

Web-based Notices and Discussion forum can also be accessed from MUSO site.

A bootable KNOPPIX CDROM distributed to students at the first tutorial and for use as part of some tutorial exercises in Labs.

Library access

The Monash University Library site contains details about borrowing rights and catalogue searching. To learn more about the library and the various resources available, please go to <http://www.lib.monash.edu.au>.

The Educational Library and Media Resources (LMR) is also a very resourceful place to visit at <http://www.education.monash.edu.au/library/>

Students should also consult with the library reading list, which include some digitized pages from selected references.

Monash University Studies Online (MUSO)

All unit and lecture materials are available through MUSO (Monash University Studies Online). Blackboard is the primary application used to deliver your unit resources. Some units will be piloted in Moodle. If your unit is piloted in Moodle, you will see a link from your Blackboard unit to Moodle (<http://moodle.monash.edu.au>) and can bookmark this link to access directly. In Moodle, from the Faculty of Information Technology category, click on the link for your unit.

You can access MUSO and Blackboard via the portal: <http://my.monash.edu.au>

Click on the Study and enrolment tab, then Blackboard under the MUSO learning systems.

In order for your Blackboard unit(s) to function correctly, your computer needs to be correctly configured.

For example:

- Blackboard supported browser
- Supported Java runtime environment

For more information, please visit: <http://www.monash.edu.au/muso/support/students/downloadables-student.html>

You can contact the MUSO Support by phone : (+61 3) 9903 1268

For further contact information including operational hours, please visit: <http://www.monash.edu.au/muso/support/students/contact.html>

Further information can be obtained from the MUSO support site: <http://www.monash.edu.au/muso/support/index.html>

Assessment

Unit 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 non-examination assessments average, and
 - ◆ an overall unit mark of 50% or more.

If a student does not achieve 40% or more in the unit non-examination assessment, then a mark of no greater than 44-N will be recorded for the unit.

Assignment tasks

• Assignment Task

Title : Laboratory Quizzes

Description :

Three (3) 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 : 30%

Criteria for assessment :

The assessment criteria will be described along with the details of the assessment when it is administered during the scheduled tutorials. In summary, the assessment requires that questions are answered correctly and required tasks are completed successfully.

Due date : The assessments will be held during tutorials of Weeks 4, 7 and 10.

Remarks (optional - leave blank for none) :

Due to the assessment requirements above, **it is crucial for students to complete all quizzes**. Missing one or more quizzes may bring the assessment average below 40%, violating the hurdle requirement and bringing about a failure for this unit.

• Assignment Task

Title : Network administration project

Description :

This project will involve theoretical and practical aspects of the unit. The deliverables therefore include a report as well as practical demonstrations. Submissions and demonstrations will be scheduled in portions throughout the semester.

Weighting : 70%

Criteria for assessment :

The assessment criteria will be released with the assignment details. The outcome of practical work will be assessed during demos, while reports will be assessed separately.

Due date : Practical outcomes will be demonstrated during tutorials from Week 10. Reports will be due on the Friday of that week.

Remarks (optional - leave blank for none) :

In order to be a valid submission, the report component of this project must be submitted electronically via Damocles: <http://viper.infotech.monash.edu.au/damocles/submit/>. Note that 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.
- ◆ 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".

Assignment submission

The parts of the assignments that require written submission must be delivered to the labelled mailbox at the offices of the Caulfield School of IT office **on or before the nominated submission date and time**, with the appropriate cover sheet correctly filled out and attached. **In addition**, the assignments must be **submitted as PDF documents** via a website that will be provided for that purpose.

University and Faculty policy on assessment

Due dates and extensions

The due dates for the submission of assignments are given in the previous section. Please make every effort to submit work by the due dates. It is your responsibility to structure your study program around assignment deadlines, family, work and other commitments. Factors such as normal work pressures, vacations, etc. are seldom regarded as appropriate reasons for granting extensions. Students are advised to **NOT** assume that granting of an extension is a matter of course.

Requests for extensions must be made to the unit lecturer at your campus at least two days before the due date. You will be asked to forward original medical certificates in cases of illness, and may be asked to provide other forms of documentation where necessary. A copy of the email or other written communication of an extension must be attached to the assignment submission

Late assignment

Assignments received after the due date will be subject to a penalty of 5% per day, including weekends. Assignments received later than one week (seven days) after the due date will not normally be accepted. In some cases, this period may be shorter if there is a need to release sample solutions.

This policy is strict because comments or guidance will be given on assignments as they are returned, and sample solutions may also be published and distributed, after assignment marking or with the returned assignment.

Return dates

Students can expect assignments to be returned within two weeks of the submission date or after receipt, whichever is later.

Assessment for the unit as a whole is in accordance with the provisions of the Monash University Education Policy at <http://www.policy.monash.edu/policy-bank/academic/education/assessment/>

We will aim to have assignment results made available to you within two weeks after assignment receipt. Uncollected assignments will be retained by the lecturer after the end of semester. Assignments remaining uncollected by the end of the following semester will be discarded.

Plagiarism, cheating and collusion

Plagiarism and cheating are regarded as very serious offences. In cases where cheating has been confirmed, students have been severely penalised, from losing all marks for an assignment, to facing disciplinary action at the Faculty level. While we would wish that all our students adhere to sound ethical conduct and honesty, I will ask you to acquaint yourself with the University Plagiarism policy and procedure (<http://www.policy.monash.edu/policy-bank/academic/education/conduct/plagiarism-procedures.html>) which applies to students detected plagiarising.

In this University, cheating means seeking to obtain an unfair advantage in any examination or any other written or practical work to be submitted or completed by a student for assessment. It includes the use, or attempted use, of any means to gain an unfair advantage for any assessable work in the unit, where the means is contrary to the instructions for such work.

When you submit an individual assessment item, such as a program, a report, an essay, assignment or other piece of work, under your name you are understood to be stating that this is your own work. If a submission is identical with, or similar to, someone else's work, an assumption of cheating may arise. If you are planning on working with another student, it is acceptable to undertake research together, and discuss problems, but it is not acceptable to jointly develop or share solutions unless this is specified by your lecturer.

Intentionally providing students with your solutions to assignments is classified as "assisting to cheat" and students who do this may be subject to disciplinary action. You should take reasonable care that your solution is not accidentally or deliberately obtained by other students. For example, do not leave copies of your work in progress on the hard drives of shared computers, and do not show your work to other students. If you believe this may have happened, please be sure to contact your lecturer as soon as possible.

Cheating also includes taking into an examination any material contrary to the regulations, including any bilingual dictionary, whether or not with the intention of using it to obtain an advantage.

Plagiarism involves the false representation of another person's ideas, or findings, as your own by either copying material or paraphrasing without citing sources. It is both professional and ethical to reference clearly the ideas and information that you have used from another writer. If the source is not identified, then you have plagiarised work of the other author. Plagiarism is a form of dishonesty that is insulting to the reader and grossly unfair to your student colleagues.

Register of counselling about plagiarism

The university requires faculties to keep a simple and confidential register to record counselling to students about plagiarism (e.g. warnings). The register is accessible to Associate Deans Teaching (or nominees) and, where requested, students concerned have access to their own details in the register. The register is to serve as a record of counselling about the nature of plagiarism, not as a record of allegations; and no provision of appeals in relation to the register is necessary or applicable.

Non-discriminatory language

The Faculty of Information Technology is committed to the use of non-discriminatory language in all forms of communication. Discriminatory language is that which refers in abusive terms to gender, race, age, sexual orientation, citizenship or nationality, ethnic or language background, physical or mental ability, or political or religious views, or which stereotypes groups in an adverse manner. This is not meant to preclude or inhibit legitimate academic debate on any issue; however, the language used in such debate should be non-discriminatory and sensitive to these matters. It is important to avoid the use of discriminatory language in your communications and written work. The most common form of discriminatory language in academic work tends to be in the area of gender inclusiveness. You are, therefore, requested to check for this and to ensure your work and communications

are non-discriminatory in all respects.

Students with disabilities

Students with disabilities that may disadvantage them in assessment should seek advice from one of the following before completing assessment tasks and examinations:

- Faculty of Information Technology Student Service staff, and / or
- your Unit Coordinator, or
- Disabilities Liaison Unit

Deferred assessment and special consideration

Deferred assessment (not to be confused with an extension for submission of an assignment) may be granted in cases of extenuating personal circumstances such as serious personal illness or bereavement. Information and forms for Special Consideration and deferred assessment applications are available at <http://www.monash.edu.au/exams/special-consideration.html>. Contact the Faculty's Student Services staff at your campus for further information and advice.