



**Swinburne University of Technology**  
*Faculty of Information and Communication Technologies*

**Unit Outline**  
**HET306 Unix for Telecommunications**

Teaching Period 4, 2006

**Credit Points:** 12.5

**Duration and Contact Hours:** 5 hours per week for one teaching period

**Prerequisites:** Nil

**Learning Objectives:**

Students who successfully complete this unit of study will be able to:

- Use basic Unix commands to access, copy, edit files.
- Become familiar with the administration of a unix server or workstation.
- Configure common network services, devices and security.
- Become familiar with the use of network administration tools on Unix systems

**Graduate Attributes:**

The graduate attributes which relate to this unit of study help to produce graduates who:

- are capable in their chosen professional areas.
- are adaptable and manage change.
- operate effectively in work and community situations.
- are aware of environments.

**Engineers Australia Generic Attributes:**

- Ability to apply knowledge of basic science and engineering fundamentals;
- In-depth technical competence in at least one engineering discipline;
- Ability to communicate effectively, not only with engineers but also with the community at large;
- Ability to utilise a systems approach to design and operational performance;
- Ability to function effectively as an individual and in multi-disciplinary and multi-cultural teams, with the capacity to be a leader or manager as well as an effective team member;
- Ability to understand problem identification, formulation and solution;
- Expectation of the need to undertake lifelong learning, and capacity to do so;

**Content:**

- History of Unix
- Comparison of Unix systems
- Functionality of the Unix Kernel
- The Unix CLI (Command Line Interface) and Shell
- Unix as a network services platform
- Writing network applications under Unix
- Configuring Unix networked services
- Network and network traffic analysis
- File and print sharing
- Building network devices

**Teaching Method:**

Lecture: 2 hour per week

Tutorial: 1 hour per week

Laboratory: 2 hours per week

You should normally expect to spend, on average, twelve and a half hours of total time (formal contact time plus independent study time) a week on a 12.5 credit point subject.

**Assessment:**

Pass Requirement: To pass this unit of study, a student must achieve a total overall mark of 50% or more and students must achieve the minimum required pass marks outlined in the table below. If you do not achieve the minimum requirements you will receive a maximum of 45 as your mark for the unit.

Assessment Criteria

Assessment Component	Weighting in final mark	Minimum mark required to be eligible for a pass
Laboratory Attendance	0	Eight out of the ten laboratory sessions must be completed to be eligible for a pass
Laboratory Work	20%	The last four laboratory sessions are assessable. These sessions will receive an equal weighting, to be eligible for a pass you must achieve an overall mark of 40% for this.
Assignment	20%	40%
Final Written Exam (3 hours) <b>(Major Assessment Component)</b>	60%	40%

**References:**

- D.E. Comer and D.L. Stevens, "Internetworking with TCP/IP Volume III Client/Server Programming and Applications", Prentice Hall, 1997 (or later)
- "The FreeBSD Handbook", online at (<http://www.freebsd.org> as of 2006)
- E.Siever, "Linux in a nutshell (3<sup>rd</sup> Edition)", O'Reilley and Associates, August 2000 (or later)
- A.S. Tanenbaum, "Modern Operating Systems", Prentice Hall, 1992 (or later)
- "Samba Web Pages", online at (<http://www.samba.org> as of 2006)
- "Apache Web Pages", online at (<http://www.apache.org> as of 2006)

**Provisional Outline:**

Week No	Week Start	Lecture Topic	Laboratory
1	24/7	Unit Structure Introduction to Unix	
2	31/7	The functionality and purpose of the Unix kernel <ul style="list-style-type: none"> <li>• Device drivers</li> <li>• Hardware abstractions</li> <li>• File Systems</li> <li>• Network interfaces</li> <li>• Processes</li> </ul>	YES
3	7/8	The Shell – Command Line Interfaces (CLI) and scripting	YES
4	14/8	Unix as a networked services platform <ul style="list-style-type: none"> <li>• Remote Access methods</li> <li>• Client/Server Infrastructure</li> </ul>	YES
5	21/8	Writing networked applications under Unix	YES
6	28/8	Configuring basic networked services	YES
7	4/9	Configuring Web Services – Apache	YES
8	11/9	Network and Traffic Analysis tools <ul style="list-style-type: none"> <li>• Scanning the network</li> <li>• Analysing protocols</li> <li>• Sniffing traffic</li> </ul>	YES
	18/9	<b>Consultation Week</b>	
	26/9	<b>Mid-Semester Break</b>	<b>(No Teaching)</b>
9	2/10	File and Print Sharing services <ul style="list-style-type: none"> <li>• NFS</li> <li>• Samba</li> <li>• CUPS</li> </ul>	YES
10	9/10	Using Unix as Network Devices <ul style="list-style-type: none"> <li>• Configuring Bridges</li> <li>• Configuring Routers</li> </ul>	YES
11.	16/10	Configuring DHCP and DNS Services with Unix	YES
12	23/10	Unix as a Desktop OS Review	

Convenor: Dr. J. But  
Room: EN606e  
Telephone: 9214 8316  
E-mail: jbut@swin.edu.au  
Consultation times: Tue 2pm-4pm

Other Staff:  
Warren Harrop  
E-mail: wazz@swin.edu.au

**Special Information**Unit Blackboard Site

This unit of study will utilise the Blackboard system for web access to learning material such as sample files for laboratory activities, lecture materials, recommended web sites, examination information, assignment handouts and other important information. See <http://mysubjects.swin.edu.au>

Remote Access Resources

All laboratories are to be completed via means of RULE (Remote Unix Learning Environment). RULE is a remotely accessible equipment rack hosting a number of real and virtual Unix based machines. Students are provided with a number of real and/or virtual hosts with which to run their experiments. RULE is accessible 24 hours a day, both internally from Swinburne and externally from home via dial-up or the Internet. To obtain external access the student will need to install a VPN client. The VPN installation details are available from the Swinburne ITS Helpdesk

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## Assessment Details and Regulations

### Attendance Requirements:

Students are expected to attend all scheduled classes for the subject.

### Assessment Moderation:

Students should be aware that the marks awarded during semester and for the final examination may be subject to moderation.

## Students with Special Needs

Students with special needs should advise the Faculty of ICT office (AD building), the Equity Office and the subject convener.

### Assignment/Project Submission:

Assignments may be submitted on-line or in hardcopy as indicated by the Unit Convenor. Assignments submitted in hardcopy must be submitted in an A4 folder or envelope, with a copy of the Assignment Cover Sheet *fixed securely to the outside on the front of the folder/envelope*. *Assignments submitted without the cover sheet will not be marked*. All disks should be placed in an envelope and secured to the assignment folder. Assignments should be placed in the Assignment Box next to the enquiry window of the Faculty of ICT Office, Level 1 AD Building. This box is emptied once daily, at 8.30am and the front cover sheet is date stamped. Part-time students may therefore need to submit their assignments the night before the due date. Students should keep a spare copy of each assignment, as a safeguard in disputes over missing assignments. If work on a floppy disk is to be submitted, students should submit a backup disk, in case the first is faulty. In the case of later submissions of replacement disks, the whole assignment will be treated as 'late'.

In the case of group assignments, group members are indicating, by signing the cover sheet, that they agree that each member of the group made a fair and reasonable contribution. In cases of doubt or dispute, individual members of the group may be required to undergo an oral examination regarding their contribution to the assignment or project.

Assignments or projects submitted after the due date and time will attract a penalty of 10% of the total marks available per working day late, up to a maximum of five working days. Assignments submitted after five working days will be graded with zero marks.

Extensions will only be granted in exceptional circumstances, on medical or compassionate grounds. Extensions must be applied for in advance of the due date (except in emergencies). Students should contact the convenor by phone, email or in person to apply for an extension. Medical or other certificates will be required. The convenor must sign the bottom of the assignment cover sheet when approving the extension.

### Lab Report Submission:

Reports are to be submitted via the RULE system. Details are provided with each Lab assignment and consists of providing a copy of your Lab Report in a particular directory on one of your allocated RULE hosts. Since collection of these reports is automated, it is essential that you follow the provided instructions exactly.

Assignments or projects submitted after the due date and time will attract a penalty of 10% of the total marks available per working day late, up to a maximum of five working days. Assignments submitted after five working days will be graded with zero marks.

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### Assessment and Appeals Procedures:

Students are referred to the Swinburne Web Site <http://www.swin.edu.au> where they will find for details of the University's Assessment and Appeals Procedures.

### Assessment Irregularity:

Cheating and plagiarism are major infringements of the University's academic values.

"An irregularity is the unauthorised use or attempted use by or for any student of any means to gain unfair advantage in any examination, test, assignment, essay, performance, exhibition, or other work, the marks for which form part of the final assessment. It includes any action taken by a student which would constitute an unfair advantage or fraudulent attempt to demonstrate competency in an examination or assessment context. An irregularity includes misconduct and plagiarism."

"Misconduct includes an action by a student which is in breach of any directions issued by the Examination Room Supervisor, printed on the examination material or notices or specified by the Assessment and Appeals Procedures. This includes taking into an examination any unauthorised material with the intention of using said material to obtain an unfair advantage."

"Plagiarism" is the action or practice of taking and submitting or presenting the thoughts, writings or other work of someone else as though it is your own work.

Plagiarism includes any of the following, without full and appropriate acknowledgment to the original source(s):

- (a) the use of the whole or part of a computer program written by another person;
- (b) the use, in essays or other assessable work, of the whole or part of a written work from any source including but not limited to a book, journal, newspaper article, set of lecture notes, current or past student's work, any other person's work, a website or database;
- (c) the paraphrasing of another's work;
- (d) the use of musical composition, audio, visual, graphic and photographic models,
- (e) the use of realia, that is objects, artefacts, costumes, models and the like.

Plagiarism also includes the preparation or production and submission or presentation of assignments or other work in conjunction with another person or other people when that work should be your own independent work. This remains plagiarism whether or not it is with the knowledge or consent of the other person or people. It should be noted that Swinburne encourages its students to talk to staff, fellow students and other people who may be able to contribute to a student's academic work but that where independent assignment is required, submitted or presented work must be the student's own.

Enabling plagiarism contributes to plagiarism and therefore will be treated as a form of plagiarism by the University. Enabling plagiarism means allowing or otherwise assisting another student to copy or otherwise plagiarise work by, for example, allowing access to a draft or completed assignment or other work.

Cases of examination or assessment irregularities will be dealt with according to the provisions of Section 9 of the Assessment and Appeals Policy and Procedures. Penalties for assessment irregularities can be severe, including failure of subject or exclusion from the course.

### Retention of Assessed Materials

You **MUST** retain all assessed material that contributes to the final grade up until such time as the final grades are promulgated. The assessment material must, after a reasonable time, be produced on demand for review by the Faculty. Non-compliance with this requirement may result in loss of all credit for the assessed material not so produced.

### Publication of in-semester assignment marks.

The Faculty of Information and Communication Technologies undertakes to publish marks for work submitted during the semester (typically assignments and lab tasks) no later than two weeks after the due date or date of submission, whichever is greater. Note that final assignment or examination results will not normally be published. Contact the teaching staff member responsible for your assessment, or the subject convener if your marks have not been published in a timely manner.

### **Safety Standards and Regulations:**

The University executes safety drills without warning. Be prepared to follow instructions from staff and/or wardens to evacuate the building in a safe and orderly manner.)

Eating, drinking or smoking in the laboratories is not allowed. For your own safety, bare feet, thongs and other open sandals are forbidden in certain laboratories. A mature, sensible attitude and a healthy respect for the equipment are always required. Juvenile, ill-mannered or reckless behaviour will not be tolerated, and the laboratory supervisor has the right to exclude students from the laboratory should their behaviour constitute a danger to themselves or to others. Such behaviour would result in forfeiture of all marks for that experiment. The playing of computer games is not allowed in the computer labs.



**Swinburne University of Technology**  
**Faculty of Information and Communication Technologies**  
**ASSIGNMENT AND PROJECT COVER SHEET**

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Unit Code: HET306                      Unit Title: \_\_\_\_\_                      Unix for Telecommunications

Assignment number and title: \_\_\_\_\_                      Due date: \_\_\_\_\_

Lab/tute group: \_\_\_\_\_                      Tutor: \_\_\_\_\_                      Lecturer: \_\_\_\_\_

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Family name: \_\_\_\_\_                      Student ID: \_\_\_\_\_

Other names: \_\_\_\_\_

**To be completed if this is an individual assignment**

I declare that this assignment is my individual work. I have not worked collaboratively nor have I copied from any other student's work or from any other source except where due acknowledgment is made explicitly in the text, nor has any part been written for me by another person.

Signature: \_\_\_\_\_

**To be completed if this is a group assignment**

We declare that this is a group assignment and that no part of this submission has been copied from any other student's work or from any other source except where due acknowledgment is made explicitly in the text, nor has any part been written for us by another person.

ID Number	Name	Signature
_____	_____	_____
_____	_____	_____
_____	_____	_____

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Marker's comments:

Total Mark: \_\_\_\_\_

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**Extension certification:**

This assignment has been given an extension and is now due on \_\_\_\_\_

Signature of Convenor: \_\_\_\_\_