University of Tasmania  
School of Computing  
KXA458 Linux Internals  
Unit Outline  
Semester 2, 2003  

Prerequisites  
None  

Corequisites  
None  

Unit Weight  
12.5  

Unit Coordinator  
Dr. Vishv Malhotra  
Room 456  
(03) 6226 2944  
Vishv.Malhotra@utas.edu.au  

Scheduled Teaching Sessions  
Campuses:  
- Launceston  
- Hobart  

Lectures: 3 hr/wk  

The Unit Timetable can be accessed from the Study Resources section of the School website. (http://www.comp.utas.edu.au/app/studyresources.jsp).  

Teaching sessions will be delivered simultaneously to both campuses via video-conferencing.  

Being an honours level unit, it is expected that the students will do independent, self-directed study outside the classroom. It will be assumed that the students enrolled in the unit have adequate knowledge of programming language C or are willing to learn the language.  

Unit Website  
The unit website is accessed from http://webct.utas.edu.au:8900. You will need to use your email pop account username and password to log on to the WebCT system. Once authenticated by the system your personalised MyWebCT area will be displayed. It contains links to the websites that you have permission to access - including the website for this unit.  

This unit is Web Dependent: content. This means that you will need to use the Web for this unit. The unit website contains unit information and resources. Students are expected to print their lecture notes from the unit website. Lecture notes for each week will be available on the website at the start of the corresponding week.  
In addition, electronic versions of some books are placed on this site. Students should access them as required.  

If you are not able to access the unit website, please contact the University IT help desk:  
- Level 2 Morris Miller Library, Sandy Bay Campus; Level 0 Building A, Newnham Campus.  
- Website: http://www.utas.edu.au/helpdesk  
- Telephone: 6226 1818  
- Fax: 6226 7669  
- Email: HelpDesk@utas.edu.au  

Prescribed Text  
A number of books will be listed in the lecture notes for week 01.  

Provider  
School of Computing - Faculty of Science, Engineering, and Technology. http://www.comp.utas.edu.au  

Useful University Web Links  
Information and Resources for 'Current Students' are available on the university website at: http://www.utas.edu.au/students/ It includes useful links such as:  

OVERVIEW
**Introduction**

The unit studies the internal structures of Linux and Unix systems with the following main goals:

1. To study the design of a software system that has shown remarkable software quality attributes
2. To learn and understand the design of a concurrent, multi-user and secure system
3. To learn how application programs can interact with the underlying operating systems
4. To have a deeper understanding of the issues related to the operating systems.

**Objectives**

On successful completion of this unit, you will be able to:

1. Understand and explain the functions of main components of Linux operating system
2. Have an appreciation of the reasons that have made Unix/Linux a software wonder
3. Be able to write advanced applications that interact with the operating systems in sophisticated ways

**Unit Content**

1. Introduction to Unix/Linux kernel
2. Kernel services
3. Linux processes -- threads, signals
4. File systems -- cache management
5. Interprocess communication
6. Devices and device drivers
7. Terminal management

For more information see the section titled 'Content' on the unit website.

**Generic Skills**

The university has defined a set of generic graduate attributes expected in its graduates. [http://www.admin.utas.edu.au/academic/acservices/meetings/Senate/Appendix/3_01D1.doc](http://www.admin.utas.edu.au/academic/acservices/meetings/Senate/Appendix/3_01D1.doc) Your course is designed to enable you to develop generic skills that are valued in, and expected of, graduates. These are skills that you will need to develop over time. Hence you are encouraged to look for opportunities, as you study each unit, to reflect on and improve these skills.

**LEARNING AND TEACHING**

**Approach to Learning**

You are expected to spend about 130 hrs studying in this unit - this includes attendance at scheduled teaching sessions. (For a 13 week semester this is, on average, 10 hr/wk.) This is the amount of study time that the 'typical' student will need to reach the level of competence and understanding required to fulfil the unit objectives.

You are expected to:

- attend all scheduled lectures, unless otherwise notified by the unit coordinator
- prepare for, and actively participate in lectures
- complete the assigned learning tasks
- review what has been learnt
- complete assessment items and submit them on time
- access and be familiar with the information and resources available on the unit website
- seek help from teaching staff if you have any questions or difficulties in studying this unit

You are encouraged to read the university's *Code of Conduct for Teaching and Learning*. Part A describes the 'Responsibility of the University to Students' and part B describes the 'Responsibilities of Students to the University'. [http://www.admin.utas.edu.au/HANDBOOKS/UTASHANDBOOKS/RULES/CTEA.html](http://www.admin.utas.edu.au/HANDBOOKS/UTASHANDBOOKS/RULES/CTEA.html)

**Schedule**

See the 'Schedule' section on the unit website for the timetable and associated resources.

**Teaching and Support Staff**

**Teaching Staff**

Unit Coordinator:

Lecturer: Dr. Vishv Malhotra  
E-Mail: Vishv.Malhotra@utas.edu.au  
Phone: (03) 6226 2944  
Room: 456

**Lecturing Staff**

No Lectures Scheduled

**School Help Desk**
Contact the School Help Desk if you have any queries or problems with accessing, using, or printing from the computers in the School of Computing labs.

- **Hobart:** the Help Desk is located near the School's reception desk and is open in the morning from 9-11, and in the afternoon from 12-1 and 2-4, Monday-Friday. The phone number is 6226 2960.
- **Launceston:** the Help Desk is located near the entrance to the computing labs and is open in the morning from 10-12, and in the afternoon from 2-4:30, Monday-Thursday. On Fridays it is open from 10-12 in the morning and 2-4 in the afternoon. The phone number is 6324 3654.
- **Burnie:** the computer labs at the NWC are maintained by ITS. Please contact the University Help Desk for assistance. The 6 Macs are maintained by the School of Computing. If you have a query or problem that is specific to the School of Computing please phone the School of Computing Help Desk in Launceston.

**University Services and Support**

The University has staff available to assist you, such as the:

- Learning Development Advisor
- Student Counselor
- Careers Advisor
- Disability Officer

For more information and contact details see the Services and Support section on the University 'Current Students' web page, [http://www.utas.edu.au/students/](http://www.utas.edu.au/students/)

**Resources**

**Unit Website**

The unit website contains unit information and resources. Students are expected to print their lecture notes from the unit website. Lecture notes for each week will be available on the website at the start of the corresponding week.

In addition, electronic versions of some books are placed on this site. Students should access them as required.

**Prescribed Text**

A number of books will be listed in the lecture notes for week 01.

**Readings**

The reading list will be provided in lecture 1.

**Software**

The software that you will need to access the unit website and to study this unit, including general purpose software such as word processors, is provided on the computers in the School's computing labs. If you intend to use software on other computers please check that the versions are compatible.

Programs and other executable code, where necessary, will be made available in the 'Resources' section of the unit website (details will be specified later).

**Computing Facilities**

The School has PC labs (Windows 2000 Professional), Mac labs (Mac OS-X 10.2), Unix labs (linux / X-windows), and Networking labs at the Newnham and Sandy Bay campuses. It also maintains 6 Macs (Mac OS-X 10.2) at the NW Centre.

If you have not used these facilities before please contact the School Help Desk to organise you account details. If you would like to access the facilities at the Newnham and Sandy Bay campuses after hours please contact the School Help Desk.

Please contact the School Help Desk if you have difficulty accessing or using these facilities.

**Ethical Use of Facilities**

Use of computing facilities provided by the School is subject to the School's Ethics Guidelines - [http://www.comp.utas.edu.au/app/ethics.jsp](http://www.comp.utas.edu.au/app/ethics.jsp). Copies of the guidelines are also available in all School labs. The School's facilities may only be used for study-related purposes, and may not be used for personal gain. The playing of games is strictly prohibited in all labs at all times. Before being granted access to the
School's facilities, you will be required to sign a declaration that you have read and understand these guidelines, and that you will abide by them. Disciplinary action may be taken against students who violate the guidelines.

**Occupational Health and Safety**

The university is committed to providing a safe and secure teaching and learning environment. For more information see [http://www.admin.utas.edu.au/hr/ohs/pol_proc/ohs.pdf](http://www.admin.utas.edu.au/hr/ohs/pol_proc/ohs.pdf)

**ASSESSMENT**

**Assessment Items**

**Item 1**

**Title:** Assignment 1  
**Type:** In-Semester - individual assignment  
**Weighting:** 30%  
**Due:** Each student to negotiate their due date

**Item 2**

**Title:** Assignment 2  
**Type:** In-Semester - individual assignment  
**Weighting:** 30%  
**Due:** Each student to negotiate their due date

**Item 3**

**Title:** 6-hr take home exam  
**Type:** In-Semester - test  
**Weighting:** 40%  
**Due:** 07 Oct 03 (Tues) 10am-4pm

Notice that the exam is scheduled before the university examination period. In a take home examination, the lecturer relies on the honesty of the honours students and trusts they will not contact another human, in any form, for solution to any exam question.

See the 'Assessment' section in unit website for more detailed information about assessment items.

**In-Semester Assessment**

Unless specifically stated in the specification of the assessment item provided on the unit website, it is required that:

- work submitted by a student is the work of that student alone OR
- where the assessment item is to be completed by a group of students, the work submitted by the group of students is the work of that group of students alone.

**Plagiarism**

Plagiarism is taking and using someone else's thoughts, writings, or inventions and representing them as your own; for example downloading an essay from a cheat site, copying another student's work, or using an author's words or ideas without citing the source. Plagiarism is a form of cheating. It is a University offence punishable by a range of penalties including a fine or deduction/cancellation of marks and, in the most serious of cases, exclusion from a unit, a course, or the University. When in doubt consult your lecturer or tutor. Details of penalties that can be imposed are available in the Ordinance of Student Discipline or at [http://www.utas.edu.au/plagiarism](http://www.utas.edu.au/plagiarism).

**Referencing**

The university document on plagiarism contains information about referencing the work or ideas of others. The preferred text referencing systems for the School is the Harvard system (also referred to as the author-date system). For information on the Harvard system see [http://www.utas.edu.au/library/assist/gpoa/gpoa2.html](http://www.utas.edu.au/library/assist/gpoa/gpoa2.html).

**Submissions**

All in-semester assignment submissions (including electronic submissions) are to include an Assignment Cover Sheet which includes a statement confirming that the submission is your own work. If this undertaking is not signed, the assignment will not be marked. The Assignment Cover Sheet is available from the School Help Desk in Launceston and Hobart, and on the School's web site [http://www.comp.utas.edu.au/app/studyresources.jsp](http://www.comp.utas.edu.au/app/studyresources.jsp).
Extensions

Assessment items will not be accepted after the due date except under the conditions stated in the school policy on late assessment. [http://www.comp.utas.edu.au/app/late_assess.jsp](http://www.comp.utas.edu.au/app/late_assess.jsp)

Final Grade

Passing grades will be awarded based on the AVCC guidelines:

- PP at least 50% of the overall mark but less than 60%
- CR at least 60% of the overall mark but less than 70%
- DN at least 70% of the overall mark but less than 80%
- HD at least 80% of the overall mark

The maximum mark awarded to a student who fails the unit will be 44.

For more information, including other grades such as Supplementary and Terminating grades, see the School of Computing's guidelines for assessment - available at: [http://www.comp.utas.edu.au/app/assess.jsp](http://www.comp.utas.edu.au/app/assess.jsp)