Overview

Introduction

The unit studies the internal structures of Linux and Unix systems with an emphasis on system calls to achieve the following 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.

Prior Learning

The unit expects the students to have good knowledge and experience in C programming and basic UNIX commands. To ensure that such is the case, a short practical test will be conducted in the first week of the semester on basic C programming and Unix commands. Students failing the test would be advised to build the necessary basics by enrolling in preparatory units.

Learning Outcomes

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
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.utas.edu.au/policy/subject.html#graduates](http://www.utas.edu.au/policy/subject.html#graduates) 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

Being an honours level unit, it is expected that the students will do independent, self-directed study outside the classroom. A commitment to write sophisticated programs without help from tutor/lecturer on basic programming issues is necessary.

Some serious cases of academic misconduct were noticed in this unit in the previous year. Students can expect the lecturer to continue with no nonsense policy as far as students’ academic conducts are concerned.

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.utas.edu.au/tl/policies/codes.html](http://www.utas.edu.au/tl/policies/codes.html)

#### Schedule

Lectures will be scheduled in weeks 2 to 6 (inclusive). Student presentations will be scheduled in weeks 8 to 10 (or beyond, if needed). Note there are 4 hours of scheduled lecture/presentation time in each of these weeks.

### Teaching and Support Staff

#### Teaching Staff

**Unit Coordinator:**

Vishv Malhotra  
E-Mail: Vishv.Malhotra@utas.edu.au  
Phone: (03) 6226 2944  
Room: 456, Sandy Bay Campus, Hobart

#### 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 from 10am - 4pm 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 10am - 12pm, and in the afternoon from 2pm - 4:30pm, Monday-Thursday. On Fridays it is open from 10am - 1pm, and 2pm - 4pm in the afternoon. The phone number is 6324 3447.
- **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...
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

Main texts:

Readings

The University libraries have good stock of books related to the unit. Extensive online resources are also accessible over the net in this area.

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 XP), Mac labs (Mac OS-X 10.4), and Networking labs at the Newnham and Sandy Bay campuses. It also maintains 6 Macs (Mac OS-X 10.4) at the NW Centre. Unix accounts can be accessed from all Macs and PCs.

If you have not used these facilities before please contact the School Help Desk to organise your 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.

Depending on the number of students enrolled on each campus a few dedicated machines will may be provided with Linux OS. Students with allocated machines may find it convenient to install Linux on their computers.

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/](http://www.admin.utas.edu.au/hr/ohs/pol Proc/)
### Assessment Items

**Item 1**

**Title:** C and Unix background assessment  
**Type:** In-Semester - test  
**Weighting:** 10%  
**Due:** 20 July 2006 10-11AM  

Students scoring unsatisfactory marks in this assessment must seriously reconsider their intention to continue in the unit.

**Item 2**

**Title:** Programming project  
**Type:** In-Semester - group project  
**Weighting:** 30%  
**Due:** 3:00pm, 20 October 2006 (Friday)

**Item 3**

**Title:** Presentation  
**Type:** In-Semester - group project  
**Weighting:** 30%  
**Due:** Presentation as agreed  

Half hour presentation should be scheduled in weeks 8-10. Slots will be allocated on first-come-first-serve basis after week 2. Each 2-hour scheduled teaching session will have 3 presentations.

**Item 4**

**Title:** 4-hr take home exam  
**Type:** In-Semester - test  
**Weighting:** 30%  
**Due:** 02 Oct 2006 (Monday) 10am-2pm  

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.

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**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 a form of cheating. It is taking and using someone else’s thoughts, writings or inventions and representing them as your own, for example:

- using an author’s words without putting them in quotation marks and citing the source;  
- using an author's ideas without proper acknowledgment and citation; or  
- copying another student’s work.

If you have any doubts about how to refer to the work of others in your assignments, please consult your lecturer or tutor for relevant referencing guidelines, and the academic integrity resources on the web at [http://www.utas.edu.au/tl/supporting/academicintegrity/index.html](http://www.utas.edu.au/tl/supporting/academicintegrity/index.html).

The intentional copying of someone else’s work as one’s own is a serious offence punishable by penalties that may range from a fine or deduction/cancellation of marks and, in the most serious of cases, to exclusion from a unit, a course or the University. Details of penalties that can be imposed are available in the Ordinance of Student Discipline – Part 3 Academic Misconduct, see [http://www.utas.edu.au/policy/subject.html#students](http://www.utas.edu.au/policy/subject.html#students).

The University reserves the right to submit assignments to plagiarism detection software, and might then retain a copy of the assignment on its database for the purpose of future plagiarism.
checking.

Referencing

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

Submissions

The details of the submission method (paper, electronic or other) for each assignment will be supplied in a separate assignment specification sheet. 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 and Penalties

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)