FIT2065
Operating systems and the Unix environment

Unit Guide

Semester 1, 2010

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FIT2065 Operating systems and the Unix environment - Semester 1, 2010

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Introduction

This unit guide contains information regarding the intended delivery of FIT2065 in Semester 1, 2010. The synopsis of the unit, the objectives of the unit and broad assessment details for the unit are published in the official Monash University handbook entry:

http://www.monash.edu.au/pubs/handbooks/units/FIT2065.html

This unit guide does not supersede the official handbook entry and this unit guide is congruent with the unit objectives outlined in the official handbook entry. However, the sequence of lectures and topics, or the degree of emphasis on topics implied through their inclusion in the weekly topic list in this unit guide may be varied during Semester 1, 2010 at the discretion of the FIT2065 chief examiner, as long as such variation is judged by the FIT2065 chief examiner not to compromise the unit objectives.

Unit synopsis

The main topics covered in this unit include computer systems, operating systems, process management and coordination, memory management including modern implementations of virtual memory, file systems, operating system security, shell variant scripting, regular expressions, Unix utilities, Unix file system, Unix system administration and installation, Unix programming, research and development.

Learning outcomes

At the completion of this unit students will have -
A knowledge and understanding of:

- the role of operating systems in the architecture of computer systems;
- the practical considerations involved in the use of the Unix operating system; specifically memory management, process management and file system implementations;
- the role, utility and syntax of Unix scripting languages;
- considerations and techniques for securing the Unix operating system;
- the responsibilities of and tasks undertaken by Unix system administrators;
- points of contrast and similarity between Unix and other operating systems in widespread use.

Developed attitudes that enable them to:

- appreciate Unix operating system as it is implemented in modern computer systems - Unix system file system, memory management, and networking, and practical functions;
- know how to solve many systems problems using Unix scripting and system facilities;
- appreciate Unix system programming, research and development, and security.

Developed the skills to:

- use important Unix utilities to monitor Unix systems and Unix networks; construct Unix shell scripts to solve many system problems;
- implement security controls in the Unix environment;
- use Unix utilities for data processing, system development and research;
- install and configure the Unix environment;
- use Unix OS for important network servers and tailor their Unix systems to provide important system and network services.

Demonstrated the communication skills necessary to:

- understand the need to balance requirements of users in multiuser operating system environments;
- confidently discuss issues in groups with regard to the implementation of Unix;
- articulate opinions in group environments with respect to the implementation of operating system environments.

Contact hours

2 hrs lectures/wk, 2 hrs laboratories/wk

Workload

There are 4 contact hours for this unit per week (2 hours/lecture, 2 hours/tutorial).

The amount of time students need to allocate to their assignment work and understanding of material will vary from student to student. The university model of a 6 point unit suggests that an average workload would be 12 hours per week including classes, assigned work and private study.

Unit relationships

Prerequisites

FIT1001 or CSE1201 or equivalent and FIT1002 or CSE1202 or equivalent

Prohibitions

CPE3007, CPE2008, CSE2208, CSE2391, CSE3001, CSE3208, CSE3391, FIT3041, GCO3813

Teaching and learning method

Teaching approach

Lectures, tutorials and practical work. Leaning is achieved by performing hands-on exercises in the tutorial sessions.

Timetable information

For information on timetabling for on-campus classes please refer to MUTTS, http://mutts.monash.edu.au/MUTTS/

Tutorial allocation

On-campus students should register for tutorials/laboratories using the Allocate+ system: http://allocate.its.monash.edu.au/

Unit Schedule

Week	Date*	Topic	Key dates
1	01/03/10	Introduction to and history of Unix. The concept of the Unix file and the file system	
2	08/03/10	The Unix shell and editors	
3	15/03/10	Process and memory management	
4	22/03/10	Shell scripting I	
5	29/03/10	Shell scripting II	
Mid semester break			
6	12/04/10	Regular expressions, sed, awk	
7	19/04/10	Unix utilities	
8	26/04/10	Networking in Unix	Unit test undertaken in tutorials
9	03/05/10	System administration	
10	10/05/10	System calls	Assignment 1 due in lecture
11	17/05/10	Unix Security	
12	24/05/10	Current Topics	
13	31/05/10	Revision	

*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.

Improvements to this unit

Monquest evaluation will be conducted during the week 11 or 12. It will be administrated by the support staff of the Caulfield School of Information Technology.

Unit Resources

Prescribed text(s) and readings

There is no prescribed text.

Recommended text(s) and readings

This list may be subject to change

- Silberschatz, Galvin and Gagne, "Operating Systems Concepts", John Wiley & Sons, Inc. Seventh Ed.
- Marshall Kirk Mckusick and and George V Neville-Neil, "The Design and Implementation of Free BSD Unix Operating System, Addison-Wesley Professional", Latest Ed.
- Andrew S. Tanenbaum, "Modern Operating System", Prentice-Hall, Latest Ed.
- Craig Hunt, "TCP/IP Network Administration", O'Reilly & Associates Incc. Latest Ed.
- Simson Garfinkel and Gene Spafford, "Practical Unix & Internet Security", O'Reilly & Associates Incc. Second Ed, 1996.

Required software and/or hardware

Access to Linux or Unix off campus would be useful, but is not required.

Study resources

Study resources we will provide for your study are:

Your study resources will be available in Blackboard. The study resources provided for your study include copies of the lecture slides, tutorial and assignment sheets. If you have enrolled in this unit, you should be able to access this site thorugh your my monash login.

Assessment

Overview

Examination (2 hours): 60%; In-semester assessment: 40%

Faculty 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.

FIT2065 is assessed with one assignment, one unit test and a two hour closed book examination.

Assignment tasks

Assignment coversheets

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.

Assignment submission and return procedures, and assessment criteria will be specified with each assignment.

- **Assignment task 1**

  Title:
  Assignment
  Description:
  An individual assessment where students have to develop a working shell script for a practical probelm.The specification of the problem will be provided in week 3.
  Weighting:
  20%
  Due date:
  Week 10 in the lecture

- **Assignment task 2**

  Title:
  Unit Test
  Description:
  Will be conducted in week 8 tutorial class. A combination of multiple choice written test and a scripting exercise.Since it is conducted during the tutorial sessions, each group will have different set of questions and scripting exercise.

Weighting:
20%
Due date:
Week 8 tutorial class

Examination

- **Weighting:** 60%
  Length: 2 hours
  Type (open/closed book): Closed book

See Appendix for End of semester special consideration / deferred exams process.

Due dates and extensions

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 not regarded as appropriate reasons for granting extensions. Students are advised to NOT assume that granting of an extension is a matter of course.

Students requesting an extension for any assessment during semester (eg. Assignments, tests or presentations) are required to submit a Special Consideration application form (in-semester exam/assessment task), along with original copies of supporting documentation, directly to their lecturer within two working days before the assessment submission deadline. Lecturers will provide specific outcomes directly to students via email within 2 working days. The lecturer reserves the right to refuse late applications.

A copy of the email or other written communication of an extension must be attached to the assignment submission.

Refer to the Faculty Special consideration webpage or further details and to access application forms: http://www.infotech.monash.edu.au/resources/student/equity/special-consideration.html

Late assignment

Unless an extension is granted no late assignment will be accepted.

Return dates

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

Appendix

Please visit the following URL: http://www.infotech.monash.edu.au/units/appendix.html for further information about:

- Continuous improvement
- Unit evaluations
- Communication, participation and feedback
- Library access
- Monash University Studies Online (MUSO)
- Plagiarism, cheating and collusion
- Register of counselling about plagiarism
- Non-discriminatory language
- Students with disability
- End of semester special consideration / deferred exams