MONASH University
Information Technology

FIT2065
Operating systems and the Unix environment

Unit Guide

Semester 1, 2015

Last updated: 30 Jan 2015

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FIT2065 Operating systems and the Unix environment - Semester 1, 2015

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.

Mode of Delivery

- Caulfield (Day)
- Caulfield (Online)

Workload Requirements

Minimum total expected workload equals 12 hours per week comprising:

(a.) Contact hours for on-campus students:

- Two hours of lectures
- One 2-hour laboratory

(b.) Additional requirements (all students):

- A minimum of 8 hours independent study per week for completing lab and project work, private study and revision.

See also Unit timetable information

Unit Relationships

Prohibitions

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

Prerequisites

One of FIT1001, FIT1031 or CSE1201 or equivalent

Chief Examiner

Dr Malik Khan

Campus Lecturer

Caulfield

Dr. Malik Khan

Consultation hours: TBA

Tutors

Caulfield

Dr. Malik Khan

Consultation hours: TBA

Your feedback to Us

Monash is committed to excellence in education and regularly seeks feedback from students, employers and staff. One of the key formal ways students have to provide feedback is through the Student Evaluation of Teaching and Units (SETU) survey. The University's student evaluation policy requires that every unit is evaluated each year. Students are strongly encouraged to complete the surveys. The feedback is anonymous and provides the Faculty with evidence of aspects that students are satisfied and areas for improvement.

For more information on Monash's educational strategy, see:

www.monash.edu.au/about/monash-directions/ and on student evaluations, see:
www.policy.monash.edu/policy-bank/academic/education/quality/student-evaluation-policy.html

Previous Student Evaluations of this Unit

Based on feedback:

This unit is tailored towards introducing Operating Systems and Unix environment understanding and development. Student feedback has informed improvements to this unit including regular updates in unit content to follow the latest trend in Unix Operating systems.

- The practical component will be complemented with theoretical questions in the tutorials; practical components have been very well recieved by the students to help them understand the concepts,
- Supporting theory will be added as part of the lectures; and
- The non-assessable weekly quizzes will continue as the students have appreciated having these.

If you wish to view how previous students rated this unit, please go to
https://emuapps.monash.edu.au/unitevaluations/index.jsp

Academic Overview

Learning Outcomes

At the completion of this unit, students should be able to:

- analyse and evaluate various strategies used by an operating system in managing the system resources and running applications efficiently;
- analyse and identify parameters that can improve the performance of multi-programming operating systems, in particular, the Unix;
- apply the principle of threading and synchronisation in developing distributed applications; and
- demonstrate the ability of using Unix tools for system administration.

Unit Schedule

Week	Activities	Assessment
0	Please be aware this schedule is subject to change	No formal assessment or activities are undertaken in week 0
1	Computer systems overview, introduction to Unix and brief history of Unix	
2	Getting a handle on the Unix OS	
3	Shell scripting	
4	Process description and control	
5	Concurrency and Threads	
6	Deadlock and starvation	Assignment 1 due
7	Memory management	
8	File management	
9	Unix utilities	
10	Unix security	Unit Test in the tutorial class
11	System administration	
12	Review	Assignment 2 due
	SWOT VAC	No formal assessment is undertaken in SWOT VAC
	Examination period	LINK to Assessment Policy: http://policy.monash.edu.au/policy-bank/academic/education/assessment/assessment-in-coursework-policy.html

*Unit Schedule details will be maintained and communicated to you via your learning system.

Teaching Approach

Lecture and tutorials or problem classes

This teaching and learning approach provides facilitated learning, practical exploration and peer learning.

Assessment Summary

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

Assessment Task	Value	Due Date
Assignment 1 - Shell Scripting	15%	Week 6. Unless special consideration is approved, late assignments are NOT accepted.
Assignment 2 - Concurrent Programming	15%	Week 12. Unless special consideration is approved, late assignments are NOT accepted.
Unit Test	10%	Week 10 tutorial class
Examination 1	60%	To be advised

Assessment Requirements

Assessment Policy

Faculty Policy - Unit Assessment Hurdles
(http://intranet.monash.edu.au/infotech/resources/staff/edgov/policies/assessment-examinations/assessment-hurd

Academic Integrity - Please see resources and tutorials at
http://www.monash.edu/library/skills/resources/tutorials/academic-integrity/

Assessment Tasks

Participation

Students will be encouraged to participate in lecture room questions, through an online polling system.

- **Assessment task 1**

  Title:
  Assignment 1 - Shell Scripting
  Description:
  An individual assessment where students have to develop a working shell script for a practical problem. This is purely a programming exercise. The specification of the assignment will be provided in Week 3.
  Weighting:
  15%
  Criteria for assessment:
  The program will be assessed on the following:

  - Functionality;
  - Efficiency;
  - Correctness;
  - Generality of the software;
  - Error conditions, error trapping and error messages; and
  - Readability and modularity of the code.

  Due date:
  Week 6. Unless special consideration is approved, late assignments are NOT accepted.
  Remarks:
  Submission of soft copy through file transfer on the unit Moodle web site.

- **Assessment task 2**

  Title:
  Assignment 2 - Concurrent Programming
  Description:
  An individual assessment where students have to develop a working program for a practical problem using concurrency concepts learned in this unit. Programs must be coded in either C or Java.
  Weighting:
  15%
  Criteria for assessment:

- Functionality;
- Efficiency;
- Correctness;
- Generality of the software;
- Error conditions, error trapping and error messages; and
- Readability and modularity of the code.

Due date:
Week 12. Unless special consideration is approved, late assignments are NOT accepted.

- **Assessment task 3**

Title:
Unit Test
Description:
The unit test will be conducted in the week 10 tutorial class a combination multiple choice test and scripting exercise. Since it is conducted during tutorial sessions, each tutorial class will have a different set of questions.
Weighting:
10%
Criteria for assessment:
Correct answers (no negative marks for incorrect answers)

Correctness of script
Due date:
Week 10 tutorial class

Examinations

- **Examination 1**

Weighting:
60%
Length:
2 hours
Type (open/closed book):
Closed book
Electronic devices allowed in the exam:
None

Learning resources

Reading list

Texts which may be of use to you include the following:

- William Stallings, "Operating Systems: Internals and Design Principles", 7th Edition.
- Silberschatz, Galvin and Gagne, "Operating Systems Concepts", John Wiley & Sons, Inc. 7th Edition.
- Simson Garfinkel and Gene Spafford, "Practical Unix & Internet Security", O'Reilly & Associates, Inc. Latest Edition.

A number of links to web based reference material will be provided on the unit's website.

Monash Library Unit Reading List (if applicable to the unit)
http://readinglists.lib.monash.edu/index.html

Feedback to you

Types of feedback you can expect to receive in this unit are:

- Informal feedback on progress in labs/tutes
- Graded assignments with comments
- Interviews
- Test results and feedback
- Quiz results

Extensions and penalties

Submission must be made by the due date otherwise penalties will be enforced.

You must negotiate any extensions formally with your campus unit leader via the in-semester special consideration process: http://www.monash.edu.au/exams/special-consideration.html

Returning assignments

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

Assignment submission

It is a University requirement (http://www.policy.monash.edu/policy-bank/academic/education/conduct/student-academic-integrity-managing-pla for students to submit an assignment coversheet for each assessment item. Faculty Assignment coversheets can be found at http://www.infotech.monash.edu.au/resources/student/forms/. Please check with your Lecturer on the submission method for your assignment coversheet (e.g. attach a file to the online assignment submission, hand-in a hard copy, or use an electronic submission). Please note that it is your responsibility to retain copies of your assessments.

Online submission

If Electronic Submission has been approved for your unit, please submit your work via the learning system for this unit, which you can access via links in the my.monash portal.

Technological Requirements

Students are encouraged to bring devices to the lecture that can access the web (e.g. smartphone, laptop, tablet etc).

Recommended Resources

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

Other Information

Policies

Monash has educational policies, procedures and guidelines, which are designed to ensure that staff and students are aware of the University's academic standards, and to provide advice on how they might uphold them. You can find Monash's Education Policies at: www.policy.monash.edu.au/policy-bank/academic/education/index.html

Faculty resources and policies

Important student resources including Faculty policies are located at http://intranet.monash.edu.au/infotech/resources/students/

Graduate Attributes Policy

http://www.policy.monash.edu/policy-bank/academic/education/management/monash-graduate-attributes-policy.ht

Student Charter

www.opq.monash.edu.au/ep/student-charter/monash-university-student-charter.html

Student services

The University provides many different kinds of support services for you. Contact your tutor if you need advice and see the range of services available at http://www.monash.edu.au/students. For Malaysia see http://www.monash.edu.my/Student-services, and for South Africa see http://www.monash.ac.za/current/.

Monash University Library

The Monash University Library provides a range of services, resources and programs that enable you to save time and be more effective in your learning and research. Go to www.lib.monash.edu.au or the library tab in my.monash portal for more information. At Malaysia, visit the Library and Learning Commons at http://www.lib.monash.edu.my/. At South Africa visit http://www.lib.monash.ac.za/.

Disability Liaison Unit

Students who have a disability or medical condition are welcome to contact the Disability Liaison Unit to discuss academic support services. Disability Liaison Officers (DLOs) visit all Victorian campuses on a regular basis.

- Website: http://www.monash.edu/equity-diversity/disability/index.html
- Telephone: 03 9905 5704 to book an appointment with a DLO; or contact the Student Advisor, Student Commuity Services at 03 55146018 at Malaysia
- Email: dlu@monash.edu
- Drop In: Equity and Diversity Centre, Level 1, Building 55, Clayton Campus, or Student Community Services Department, Level 2, Building 2, Monash University, Malaysia Campus