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FIT9134 Computer architecture and operating systems - Semester 1, 2015

This unit introduces students to the fundamentals of computer systems and the computing environment, using Linux as a case study of a modern operating system. Topics covered include: CPU, memory, storage devices, peripheral hardware, networking fundamentals, operating systems fundamentals, practical Linux considerations including Desktop and Enterprise applications, file systems, shell scripting, client/server applications and system administration.

Mode of Delivery

Caulfield (Day)

Workload Requirements

Minimum total expected workload equals 12 hours per week comprising:

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

- One 1-hour lecture
- One 3-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

FIT9018, FIT5134

Chief Examiner

Dr Siddheswar Ray

Campus Lecturer

Caulfield

Sid Ray
Tutors

Caulfield

Andy Cheng

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 previous student feedback this unit is well structured and no major changes have been made for last semester. We did have to re-order some lab tasks due to the fact that some labs were scheduled before the lecture (caused by an unusually large enrolment).

If you wish to view how previous students rated this unit, please go to
Academic Overview

Learning Outcomes

On completion of this unit, students should be able to:

- examine and describe computer hardware and software architectures;
- explain the three major functions of an operating system (OS), namely, process management, memory management, and file management;
- explain network technologies;
- write Unix commands for file management;
- apply Unix commands to interact with OS;
- develop Unix shell scripts;
- manage usage and administration of Linux systems; and
- deploy Linux in personal and enterprise contexts.
# Unit Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Activities</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Note: The order of lectures may change - changes will be communicated to you via the unit website</td>
<td>No formal assessment or activities are undertaken in week 0</td>
</tr>
<tr>
<td>1</td>
<td>Hardware I: Introduction to Digital Computers</td>
<td>Important: Labs start in week 1. Please note that all lab sessions contain assessable tasks, and students are expected to attend them.</td>
</tr>
<tr>
<td>2</td>
<td>Operating Systems I: Introduction to Operating Systems</td>
<td>This lecture is essential for the lab tasks.</td>
</tr>
<tr>
<td>3</td>
<td>Operating Systems II: File Management</td>
<td>This lecture is essential for the lab tasks.</td>
</tr>
<tr>
<td>4</td>
<td>Operating Systems II: File Management Continued</td>
<td>This lecture is essential for the lab tasks.</td>
</tr>
<tr>
<td>5</td>
<td>Operating Systems III: Memory Management - Virtual Memory</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Operating Systems IV: Process Management Concepts</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Operating Systems VI: More Unix Shell Basics</td>
<td>This lecture is essential for the lab tasks.</td>
</tr>
<tr>
<td>8</td>
<td>Operating Systems VII: Unix Shell Scripting</td>
<td>This lecture is essential for the lab tasks.</td>
</tr>
<tr>
<td>9</td>
<td>Operating Systems VII: Unix Shell Scripting Continued</td>
<td>This lecture is essential for the lab tasks.</td>
</tr>
<tr>
<td>10</td>
<td>Operating Systems V: Process Management - Deadlocks and IPC</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Hardware II: CPU, Memory and System Performance</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Review and Discussion</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SWOT VAC</td>
<td>No formal assessment is undertaken during SWOT VAC</td>
</tr>
</tbody>
</table>

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

## Teaching Approach

### Lecture and tutorials or problem classes

- this teaching approach helps students to learn theoretical concepts during lectures and practical concepts during tutorials
- a significant portion of the learning will be achieved via assessable lab tasks performed during the tutorials (for each week)
Assessment Summary

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

<table>
<thead>
<tr>
<th>Assessment Task</th>
<th>Value</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lab Tasks</td>
<td>40%</td>
<td>Weekly in lab sessions</td>
</tr>
<tr>
<td>Examination 1</td>
<td>60%</td>
<td>To be advised</td>
</tr>
</tbody>
</table>
Assessment Requirements

Assessment Policy

Faculty Policy - Unit Assessment Hurdles

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

Assessment Tasks

Participation

Students are expected to attend all lab sessions (see description below for more details).

- Assessment task 1

  Title: Lab Tasks
  Description: There are no formal assignments for this unit. However, each lab session has a set of assessable tasks to be completed. These tasks involve installing/configuring the Linux O/S and associated applications.
  Weighting: 40%
  Criteria for assessment: How well tasks are completed during each lab session.
  Due date: Weekly in lab sessions

Examinations

- Examination 1

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

Learning resources

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

Feedback to you

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

- Informal feedback on progress in labs/tutes

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 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 expected to check the unit's Moodle website regularly (at least once a day) for announcements and other online materials. Lecture notes will be available on Moodle to be downloaded and studied. The labs are equipped with all the necessary hardware/software needed for the classes.
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:


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.html

Student Charter


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 Community 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