



MONASH University
Information Technology

FIT3042
System tools and programming languages

Unit Guide

Semester 1, 2014

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FIT3042 System tools and programming languages - Semester 1, 2014

This unit provides students with an introduction to UNIX tools for managing processes; searching, editing and modifying files and data streams; and command interpreters and shell scripts. In addition, students will learn about a typical system call interface and its use for systems programming in a language like C.

Mode of Delivery

- Clayton (Day)
- Malaysia (Day)

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 2-3 hours of personal study per one hour of contact time in order to satisfy the reading and assignment expectations.

Unit Relationships

Prohibitions

CSE2391, CSE3391

Prerequisites

One of FIT1008, FIT1015, CSE1303

Chief Examiner

Dr Robert Merkel

Campus Lecturer

Clayton

Peter Tischer

Consultation hours: Mondays 1.00pm - 2.00pm, appointments can also be arranged via email

Malaysia

Dr Sylvester Olubolu Orimaye

Consultation hours: Mondays 10.00am - 1.00pm

Tutors

Malaysia

Dr Sylvester Olubolu Orimaye

Consultation hours: Mondays 10.00am - 1.00pm

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

The exam format will more closely reflect the language-oriented content of the unit.

Material relating to Makefiles has been expanded. Lab sheets have been restructured.

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 will have:

- knowledge of the Unix philosophy at shell and system call levels;
- comprehension of Unix shells and the POSIX standard;
- knowledge of the variety of tools available and understanding of a core selection of them;
- knowledge of the Unix system call interface and associated systems programming;
- programming skills at the Unix shell level using pipelines and shell scripts applying a number of tools;
- programming skills at the system call level for systems programming.

Unit Schedule

Week	Activities	Assessment
0		No formal assessment or activities are undertaken in week 0
1	Unit Introduction	Laboratory Exercises are assessed at the end of each lab session
2	Introduction to C, Make	
3	C programming: Pointers & Data structures	
4	Unix C Programming	
5	Inter-process communication, third-party libraries	Assignment 1 handed out
6	Introduction to shell programming	
7	Shell filters	
8	Shell programming	Assignment 1 due Monday 28 April 2014
9	Regular expressions	
10	Perl 1: scalars & arrays	Assignment 2 handed out
11	Perl 2: Perl regexes	
12	Perl 3: Perl modules, Perl 6.	Assignment 2 due Friday 30 May 2014
	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

The teaching and learning approach provides facilitated learning, practical exploration and peer learning, equipping you with the ability to apply skills upon completion.

Assessment Summary

Examination (3 hours): 50%; In-semester assessment: 50%

Assessment Task	Value	Due Date
Assignment 1	20%	Monday 28 April 2014
Assignment 2	20%	Friday 30 May 2014
Laboratory Exercises	10%	At the end of each lab session
Examination 1	50%	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-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 at least 8 of the 11 labs.

• Assessment task 1

Title:

Assignment 1

Description:

C/Unix programming assignment

Weighting:

20%

Criteria for assessment:

- ◆ Correctness
- ◆ Efficiency
- ◆ Quality of solution
- ◆ Documentation

Due date:

Monday 28 April 2014

• Assessment task 2

Title:

Assignment 2

Description:

Shell/Perl programming assignment

Weighting:

20%

Criteria for assessment:

- ◆ Correctness
- ◆ Efficiency
- ◆ Quality of solution
- ◆ Documentation

Due date:

Friday 30 May 2014

Assessment Requirements

• Assessment task 3

Title:

Laboratory Exercises

Description:

Exercises held during laboratory sessions.

Weighting:

10%

Criteria for assessment:

Lab exercises are assessed during the scheduled laboratory session. Marks are awarded for successful completion of the laboratory exercises.

Due date:

At the end of each lab session

Examinations

• Examination 1

Weighting:

50%

Length:

3 hours

Type (open/closed book):

Open 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>

Faculty of Information Technology [Style Guide](#)

Feedback to you

Examination/other end-of-semester assessment feedback may take the form of feedback classes, provision of sample answers or other group feedback after official results have been published. Please check with your lecturer on the feedback provided and take advantage of this prior to requesting individual consultations with staff. If your unit has an examination, you may request to view your examination script booklet, see

<http://intranet.monash.edu.au/infotech/resources/students/procedures/request-to-view-exam-scripts.html>

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

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

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.

Resubmission of assignments

Multiple assignment submission may be enabled in Moodle. However, only the last version will be assessed. Resubmission after the due date will only be permitted after special consideration is granted through the regular faculty processes, or, occasionally, in other exceptional circumstances with lecturer permission. Penalties may apply in such circumstances.

Referencing requirements

Any written work must use appropriate referencing methods, according to the Library Guides for citing and referencing <http://guides.lib.monash.edu/content.php?pid=88267&sid=656564>

Generally, code submitted in your assignments should be your own original work. However, where code uses ideas from specific sources, they should be cited in comments.

Specific assignments may provide additional direction on referencing and reuse of third-party code.

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 online quiz). Please note that it is your responsibility to retain copies of your assessments.

Online submission

Most assignments will be submitted via the Moodle electronic learning system, which is accessed through the subject web page. The assignment coversheets will also be made available through Moodle.

Required Resources

Please check with your lecturer before purchasing any Required Resources. Limited copies of prescribed texts are available for you to borrow in the library, and prescribed software is available in student labs.

Assessment Requirements

Students will be provided with a Linux-based virtual machine environment. The virtual machine will be made available in labs and can also be installed, using free software, on any PC.

As a virtual machine, it will run under the VMWare Player software (freely downloadable) as any other application under Windows, Mac, or another version of Linux).

Students may choose to use another Linux distribution if they wish, however no support will be provided for this.

Recommended text(s)

Mark G. Sobell. (2009). *A Practical Guide to Linux Commands, Editors, and Shell Programming*. (2nd Edition) Prentice Hall (ISBN: 978-0131367364).

Brian W. Kernighan and Dennis M. Ritchie. (1988). *The C Programming Language*. (2nd Edition) Prentice Hall (ISBN: 978-0131103627).

Michael Kerrisk. (2010). *The Linux Programming Interface*. (1st Edition) No Starch Press (ISBN: 978-159372-200-3).

Larry Wall, Tom Christiansen, Jon Orwant. (2000). *Programming Perl*. (3rd Edition) O'Reilly Media (ISBN: 978-0-596-00027-1).

K. N. King. (2008). *C Programming: A Modern Approach*. (2nd Edition) W. W. Norton & Company (ISBN: 978-0-393-97950-3).

Field trips

No field trips.

Additional subject costs

No additional costs.

Examination material or equipment

Exam details, including permitted equipment, will be announced on the unit website during the semester.

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

Key educational policies include:

- Student Academic Integrity Policy and Student Academic Integrity: Managing Plagiarism and Collusion Procedures ;
<http://www.policy.monash.edu/policy-bank/academic/education/conduct/student-academic-integrity-policy.h>
- Assessment in Coursework Programs;
<http://www.policy.monash.edu/policy-bank/academic/education/assessment/assessment-in-coursework-po>
- Special Consideration;
<http://www.policy.monash.edu/policy-bank/academic/education/assessment/special-consideration-policy.ht>
- Grading Scale;
<http://www.policy.monash.edu/policy-bank/academic/education/assessment/grading-scale-policy.html>
- Discipline: Student Policy;
<http://www.policy.monash.edu/policy-bank/academic/education/conduct/student-discipline-policy.html>
- Academic Calendar and Semesters; <http://www.monash.edu.au/students/dates/>
- Orientation and Transition; <http://intranet.monash.edu.au/infotech/resources/students/orientation/>
- Academic and Administrative Complaints and Grievances Policy;
<http://www.policy.monash.edu/policy-bank/academic/education/management/complaints-grievance-policy.h>

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.h>

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 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