



**MONASH** University  
Information Technology

**FIT3042**  
**System tools and programming languages**

**Unit Guide**

**Semester 1, 2010**

The information contained in this unit guide is correct at time of publication. The University has the right to change any of the elements contained in this document at any time.

*Last updated: 17 Feb 2010*

# Table of Contents

<u><a href="#">FIT3042 System tools and programming languages - Semester 1, 2010</a></u> .....	1
<u>Chief Examiner:</u> .....	1
<u>Lecturer(s) / Leader(s):</u> .....	1
<u>Clayton</u> .....	1
<u>Introduction</u> .....	2
<u>Unit synopsis</u> .....	2
<u>Learning outcomes</u> .....	2
<u>Contact hours</u> .....	2
<u>Workload</u> .....	2
<u>Unit relationships</u> .....	2
<u>Prerequisites</u> .....	3
<u>Prohibitions</u> .....	3
<u>Teaching and learning method</u> .....	4
<u>Teaching approach</u> .....	4
<u>Timetable information</u> .....	4
<u>Tutorial allocation</u> .....	4
<u>Unit Schedule</u> .....	4
<u>Improvements to this unit</u> .....	4
<u>Unit Resources</u> .....	5
<u>Prescribed text(s) and readings</u> .....	5
<u>Recommended text(s) and readings</u> .....	5
<u>Required software and/or hardware</u> .....	5
<u>Equipment and consumables required or provided</u> .....	5
<u>Study resources</u> .....	5
<u>Assessment</u> .....	6
<u>Overview</u> .....	6
<u>Faculty assessment policy</u> .....	6
<u>Assignment tasks</u> .....	6
<u>Examination</u> .....	7
<u>Due dates and extensions</u> .....	7
<u>Late assignment</u> .....	8
<u>Return dates</u> .....	8
<u>Appendix</u> .....	9

# **FIT3042 System tools and programming languages - Semester 1, 2010**

## **Chief Examiner:**

### **Associate Professor John Hurst**

Associate Professor

Phone: +61 3 990 55192 +61 3 990 32196

Fax: +61 3 990 55159

Contact hours: see Moodle page

## **Lecturer(s) / Leader(s):**

### **Clayton**

### **Associate Professor John Hurst**

Associate Professor

Phone: +61 3 990 55192 +61 3 990 32196

Fax: +61 3 990 55159

## Introduction

Welcome to FIT3042 Systems Tools and Programming for semester 1, 2009. This 6 point unit is an elective for BCS Students and a core unit for BSE students. The unit has been designed to provide you with an understanding of standard UNIX operating system tools. It also looks at scripting languages, editing, data processing, and systems programming in the C programming language. The course emphasis is on the practical application of these tools to common IT tasks and applications.

## Unit synopsis

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.

## 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.

## Contact hours

2 hrs lectures/wk, 2 hrs laboratories/wk

## Workload

For on campus students, workload commitments are:

- two-hour lecture per week and
- two-hour laboratory per week (requiring advance preparation)
- a minimum of 2-3 hours of personal study per one hour of contact time in order to satisfy the reading and assignment expectations.
- You will need to allocate up to 5 hours per week in some weeks, for use of a computer, including time for newsgroups/discussion groups.

Off-campus students generally do not attend lecture and tutorial sessions, however, you should plan to spend equivalent time working through the relevant resources and participating in discussion groups each week.

## Unit relationships

## **Prerequisites**

One of FIT1008, FIT1015, CSE1303

## **Prohibitions**

CSE2391, CSE3391

## Teaching and learning method

### Teaching approach

Lectures are used to introduce important concepts and illustrate applications of the tools and topics discussed. Laboratory classes are provided to give students practical experience and understanding of how lecture concepts and tools can be used in a programming environment.

### 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.cc.monash.edu.au/>

### Unit Schedule

Week	Topic	Key dates
1	Unit Introduction, Introduction to processes	
2	Editing with the vim editor	
3	Filters	
4	Borne shell programming	
5	sed	
Mid semester break		
6	awk	
7	perl 1: scalars & arrays	
8	perl 2: subroutines & hashes	
9	Regular expressions	
10	Introduction to C, Make	
11	C Programming: pointers & data structures	
12	UNIX I/O	
13	Revision	

### Improvements to this unit

No Monquest evaluation is planned for this offering.

## Unit Resources

### Prescribed text(s) and readings

none.

### Recommended text(s) and readings

Palmer, Michael, Jack Dent & Toby Gaddis: "Guide to UNIX Using Linux" (3rd edition), Thompson 2005. ISBN: 0-619-21562-3

### Required software and/or hardware

You will need access to:

- UNIX based computer with standard UNIX operating environment (access to programs such as csh, tsh, vi, sed, awk, perl, gcc, gdb, make)
- A web browser such as Safari or Firefox

### Equipment and consumables required or provided

Students studying off-campus are required to have the minimum system configuration specified by the Faculty as a condition of accepting admission, and regular Internet access. On-campus students, and those studying at supported study locations may use the facilities available in the computing labs. Information about computer use for students is available from the ITS Student Resource Guide in the Monash University Handbook. You will need to allocate up to **n** hours per week for use of a computer, including time for newsgroups/discussion groups.

### Study resources

Study resources we will provide for your study are:

Study resources we will provide for your study are:

- Weekly detailed lecture notes outlining the learning objectives, discussion of the content, required readings and exercises;
- Weekly laboratory tasks and exercises with sample solutions provided one to two weeks later;
- Assignment specifications;
- A sample examination;
- Discussion groups;
- This Unit Guide outlining the administrative information for the unit;
- The unit web site on MUSO, where resources outlined above will be made available.

## Assessment

### Overview

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

### 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.

To pass this unit, a student must obtain :

- 40% or more in the unit's examination and
- 40% or more total in the unit's 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 assessment then a mark of no greater than 44-N will be recorded for the unit.

### 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 1

**Description:**

Unix tools programming assignment (shell scripting)

**Weighting:**

20%

**Due date:**

Thursday 29 April 2010



- **Assignment task 2**

**Title:**

Assignment 2

**Description:**

Unix systems programming assignment

**Weighting:**

20%

**Due date:**

Friday 21 May 2010

- **Assignment task 3**

**Title:**

Laboratory Exercises

**Description:**

Exercises held during laboratory sessions.

**Weighting:**

10%

**Due date:**

At the end of each lab session

## Examination

- **Weighting:** 50%

**Length:** 3 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**

Assignments received after the due date will be subject to a penalty of 5% per day, including weekends. Assignments received later than one week (seven days) after the due date will not normally be accepted. In some cases, this period may be shorter if there is a need to release sample solutions.

This policy is strict because comments or guidance will be given on assignments as they are returned, and sample solutions may also be published and distributed, after assignment marking or with the returned assignment.

## **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