MONASH University
Information Technology

**FIT1031
Computers and networks**

Unit Guide

Semester 1, 2011

Last updated: 27 Feb 2011

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FIT1031 Computers and networks - Semester 1, 2011

This unit introduces students to fundamentals of computer systems and networks. It provides basic knowledge of computer organisation and architecture, operating systems, and networking architecture, technology and operation.

Mode of Delivery

- Berwick (Day)
- Caulfield (Day)
- Gippsland (Day)
- Gippsland (Off-campus)
- South Africa (Day)

Contact Hours

2 hr lectures/wk, 2 hr tutorial/wk

Workload

For on campus students, workload commitments are:

- two-hour lecture
- two-hour tutorial, starting in week 2.
- a minimum of 1.5 hours of personal study per one hour of contact time in order to satisfy the reading and assignment expectations.This gives a total of at least 6 hours of study per week.

Unit Relationships

Prohibitions

FIT1001

Chief Examiner

Sid Ray

Campus Lecturer

Berwick

Daniel Waghorn

Caulfield

Sid Ray

Gippsland

Dengsheng Zhang

South Africa

Mohan Das

Learning Objectives

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

- understand basic computer structure and operation and demonstrate use of the associated vocabulary;
- demonstrate an understanding of the concepts of data representation, computer arithmetic and Boolean algebra using appropriate methods of implementation;
- demonstrate detailed knowledge of Internal bus and memory;
- describe the internal operation of the CPU and explain how it is used to execute instructions;
- differentiate between machine language and assembly language;
- identify factors that affect computer performance;
- demonstrate an understanding of the basics of operating systems and system software;
- understand basic networking concepts;
- discuss communication and networking models such as TCP/IP and OSI;
- describe the concept of transport layer services and principle of congestion control;
- describe routing strategies and commonly used LAN topologies, and
- adopt a problem solving approach, accept the code of professional conduct and practice and act in accordance with best practice, industry standards and professional ethics.

Graduate Attributes

Monash prepares its graduates to be:

1. responsible and effective global citizens who:

a. engage in an internationalised world
b. exhibit cross-cultural competence
c. demonstrate ethical values

critical and creative scholars who:

a. produce innovative solutions to problems
b. apply research skills to a range of challenges
c. communicate perceptively and effectively

Assessment Summary

Examination (3 hours): 60%; In-semester assessment: 40%

Assessment Task	Value	Due Date
(On-campus students(OCS) only): Four Tutorial Tests and Attendance at Tutorial Sessions. (Off-campus learning(OCL) only: OCL students will be asked to complete two assignments.	40%	(OCS) Tutorial Tests in weeks 5, 7, 9 and 11. (OCL) Assignment 1: due Week 8; Assignment 2: due Week 12.
Examination 1	60%	To be advised

Teaching Approach

Lecture and tutorials or problem classes

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

Feedback

Our feedback to You

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

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 SETU, Student Evaluation of Teacher and Unit. 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, and on student evaluations, see:
http://www.monash.edu.au/about/monash-directions/directions.html
http://www.policy.monash.edu/policy-bank/academic/education/quality/student-evaluation-policy.html

Previous Student Evaluations of this unit

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

Unit Schedule

Week	Date*	Activities	Assessment
0	21/02/11	Orientation Week: Follow the Orientation Week program	No formal activity
1	28/02/11	Introduction and Basic Concepts of Computing Systems	No Tutorial in Week 1
2	07/03/11	Data Representation and Arithmetic	Tutorial Session
3	14/03/11	Data Representation and Arithmetic	Tutorial Session

4	21/03/11	Boolean algebra and Digital Logic	Tutorial Session
5	28/03/11	Computer Architecture (including Instruction Set Architecture)	Tutorial Session plus Tutorial Test 1
6	04/04/11	Memory Components - Organization, Primary Memory, Cache Memory, Virtual Memory	Tutorial Session
7	11/04/11	Operating Systems (OS) - Introduction to OS, Types and Activities of OS	Tutorial Session plus Tutorial Test 2
8	18/04/11	Networking Concepts	Tutorial Session (For OCL students: Assignment 1 due)
Mid semester break			
9	02/05/11	Models of Communications & Networking	Tutorial Session plus Tutorial Test 3
10	09/05/11	Transport Layer and TCP	Tutorial Session
11	16/05/11	Addressing Mechanism/Routing Strategies and LAN	Tutorial Session plus Tutorial Test 4
12	23/05/11	Revision	Tutorial Session (For OCL students: Assignment 2 due)
	30/05/11	SWOT VAC	No formal activity for the unit

*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.

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

Assessment Tasks

Participation

- **Assessment task 1**

  Title:
  (On-campus students(OCS) only): Four Tutorial Tests and Attendance at Tutorial Sessions. (Off-campus learning(OCL) only: OCL students will be asked to complete two assignments.
  Description:

(OCS) Closed-book tests held during four selected tutorial sessions, 1 hour duration, contribution 9% each test. Attendance taken at each tutorial session, contribution 4%.

(OCL) Two assignments, Assignment 1 and Assignment 2, contribution 20% each assignment.

Weighting:
40%

Criteria for assessment:
(OCS) Tutorial test hurdle: 40% of the total tutorial test marks of 36, that is, minimum 14.4 out of 36.

Attendance hurdle: 40% of the total attendance marks of 4, that is, minimum 1.6 out of 4.

Note: Marks for attendance will be calculated as follows:

minimum [10, number of sessions attended] * 0.4. This means, a student will get full marks of 4 if he/she attends at least 10 tutorial sessions. On the otherhand, s/he will fail the unit FIT1031 if his/her tutorial attendance falls below four sessions.

(OCL) The Assignment hurdle is 40% of total marks, that, minimum of 16 out of 40.

Due date:
(OCS) Tutorial Tests in weeks 5, 7, 9 and 11. (OCL) Assignment 1: due Week 8; Assignment 2: due Week 12.

Examinations

- **Examination 1**

Weighting:
60%
Length:
3 hours
Type (open/closed book):
Closed book
Electronic devices allowed in the exam:
None
Remarks:
Exam hurdle: 40% of exam marks, that is, minimum 24 out of 60.

Assignment submission

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.

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.infotech.monash.edu.au/resources/student/equity/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

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:
http://policy.monash.edu.au/policy-bank/academic/education/index.html

Key educational policies include:

- Plagiarism
  (http://www.policy.monash.edu/policy-bank/academic/education/conduct/plagiarism-policy.html)
- Assessment
  (http://www.policy.monash.edu/policy-bank/academic/education/assessment/assessment-in-coursework-pc
- Special Consideration
  (http://www.policy.monash.edu/policy-bank/academic/education/assessment/special-consideration-policy.h
- 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/key-dates/);
- Orientation and Transition (http://www.infotech.monash.edu.au/resources/student/orientation/);
  and
- Academic and Administrative Complaints and Grievances Policy
  (http://www.policy.monash.edu/policy-bank/academic/education/management/complaints-grievance-policy.

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 www.monash.edu.au/students The Monash University Library provides a range of services and resources that enable you to save time and be more effective in your learning and research. Go to http://www.lib.monash.edu.au or the library tab in my.monash portal for more information. 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://adm.monash.edu/sss/equity-diversity/disability-liaison/index.html;
- Telephone: 03 9905 5704 to book an appointment with a DLO;
- Email: dlu@monash.edu
- Drop In: Equity and Diversity Centre, Level 1 Gallery Building (Building 55), Monash University, Clayton Campus.

READING LIST

Prescribed text(s) and readings

Linda Null and Julia Lobur, *Essentials of Computer Organization and Architecture*, Second Edition, Jones and Bartlett (2006), ISBN 0-7637-3769-0.

Recommended text(s) and reading

James F. Kurose and Keith W. Ross, *Computer Networks: A Top-Down Approach*, Fifth Edition, Pearson (2010), ISBN 0-13-136548-7.

Jerry Fitzgerald and Alan Dennis, *Business Data Communications and Networking*, Tenth Edition, John Wiley and Sons (2009), ISBN 978-0470-05575-5.

Douglas E. Comer, *Internetworking with TCP/IP: Principles, Protocols, and Architecture*, Volume I, Fifth Edition, Pearson Prentice Hall (2006), ISBN 0-13-198069-6.

Behrouz A. Forouzan, *Data Communications and Networking*, Fourth Edition, McGraw Hill, (2007), ISBN 0-07-296775-7.

*Note***:** In lecture notes further references will be listed.