



MONASH University
Information Technology

FIT1031
Computers and networks

Unit Guide

Semester 2, 2011

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.

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FIT1031 Computers and networks - Semester 2, 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

- Clayton (Day)
- Sunway (Day)

Contact Hours

2 hr lectures/wk, 2 hr tutorial/wk

Workload

Students will be expected to spend a total of 12 hours per week during semester on this unit as follows:

Lectures: 2 hours per week

Tutorial Sessions: 2 hours per week per tutorial (starting in week 2)

and

an additional 8 hours per week for completing tutorial questions, private study and revision.

Unit Relationships

Prohibitions

FIT1001

Chief Examiner

Dr Sid Ray

Campus Lecturer

Clayton

Sid Ray

Sunway

Simon Egerton

Academic Overview

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
Four Tutorial Tests and Attendance at Tutorial Sessions.	40%	Tutorial Tests in weeks 5, 7, 9 and 11 and at least 10 Tutorial sessions
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:

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

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>

Required Resources

Linda Null and Julia Lobur, *Essentials of Computer Organization and Architecture*, Third Edition, Jones and Bartlett Learning, Third Edition (2012), ISBN 978-1-4496-2063-9.

Unit Schedule

Week	Activities	Assessment
0	Orientation Week: Follow the Orientation Week program	No formal assessment is undertaken in week 0
1	Introduction and Basic Concepts of Computing Systems	No Tutorial in Week 1
2	Data Representation and Arithmetic	
3	Data Representation and Arithmetic	
4	Boolean algebra and Digital Logic	
5	Computer Architecture (including Instruction Set Architecture)	Tutorial Test 1
6	Memory Components - Organization, Primary Memory, Cache Memory, Virtual Memory	
7	Operating Systems (OS) - Introduction to OS, Types and Activities of OS	Tutorial Test 2
8	Networking Concepts	
9	Models of Communications & Networking	Tutorial Test 3
10	Transport Layer and TCP	
11	Addressing Mechanism/Routing Strategies and LAN	Tutorial Test 4
12	Revision	
	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 MUSO (Blackboard or Moodle) learning system.

Assessment Requirements

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:

Four Tutorial Tests and Attendance at Tutorial Sessions.

Description:

- ◆ Closed-book tests held during four selected tutorial sessions, 1 hour duration, contribution 9% each test. Attendance taken at each tutorial session, total contribution from attendance 4%. Thus, the total contribution from Assessment task 1 is 40%.

Weighting:

40%

Criteria for assessment:

- ◆ Tutorial test and attendance hurdle: 40% of 40 marks, that is 16 out of 40. (Total tutorial test marks 36, marks for attendance 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.

Due date:

Tutorial Tests in weeks 5, 7, 9 and 11 and at least 10 Tutorial sessions

Examinations

- **Examination 1**

Weighting:

60%

Length:

3 hours

Type (open/closed book):

Closed book

Electronic devices allowed in the exam:

None

Assignment submission

It is a University requirement

(<http://www.policy.monash.edu/policy-bank/academic/education/conduct/plagiarism-procedures.html>) 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).

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

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:

<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-p>)
- 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>)
- Codes of Practice for Teaching and Learning
(<http://www.policy.monash.edu.au/policy-bank/academic/education/conduct/suppdocs/code-of-practice-tea>)

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*, Third Edition, Jones and Bartlett Learning, Third Edition (2012), ISBN 978-1-4496-2063-9.

Other Information

Recommended text(s) and reading

James F. Kurose and Keith W. Ross, *Computer Networkings: 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.

Note: In lecture notes further references will be listed.