



MONASH University
Information Technology

FIT1031
Computers and networks

Unit Guide

Semester 1, 2012

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 1, 2012

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

- Gippsland (Day)
- Gippsland (Off-campus)
- South Africa (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:

For On-Campus Students (OCS): Lectures: 2 hours per week and 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.

For Off-Campus Learning (OCL) students: Total 12 hours per week for completing assignments, private study and revision.

Unit Relationships

Prohibitions

FIT1001

Chief Examiner

Dr Sid Ray

Campus Lecturer

Gippsland

Dengsheng Zhang

South Africa

Mohan Das

Academic Overview

Outcomes

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 Participation at Tutorial Sessions. Off-Campus Learning (OCL) students only: OCL students are required to complete two Assignments.	40%	OCS: Tutorial Tests in weeks 5, 7, 9 and 11; OCL: Assignments 1 and 2 are due in weeks 6 and 11 respectively.
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>

Recommended text(s)

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

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

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

Unit Schedule

Week	Activities	Assessment
0	Orientation Week: Follow the Orientation Week program	No formal assessment is undertaken in week 0: Orientation Week
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: On-Campus Students (OCS) only
6	Memory Components - Organization, Primary Memory, Cache Memory, Virtual Memory	Assignment 1: Off-Campus Learning (OCL) students only.
7	Operating Systems (OS) - Introduction to OS, Types and Activities of OS	Tutorial Test 2: On-Campus Students (OCS) only
8	Networking Concepts	
9	Models of Communications & Networking	Tutorial Test 3: On-Campus Students (OCS) only
10	Transport Layer and TCP	
11	Addressing Mechanism/Routing Strategies and LAN	Tutorial Test 4: On-Campus Students (OCS) only Assignment 2: Off-Campus Learning (OCL) students only.
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

Faculty Policy - Unit Assessment Hurdles

(<http://www.infotech.monash.edu.au/resources/staff/edgov/policies/assessment-examinations/unit-assessment-hu>)

Assessment Tasks

Participation

• Assessment task 1

Title:

On-Campus Students (OCS) only: Four Tutorial Tests and Participation at Tutorial Sessions. Off-Campus Learning (OCL) students only: OCL students are required to complete two Assignments.

Description:

- ◆ OCS: Closed-book tests, held during four tutorial sessions will contribute 36% of the total assessment. Contribution from participation component is 4%, thus making total contribution from Assessment task 1 of 40%.
- ◆ OCL: OCL students will be asked to complete two assignments. Assignment 1 - Due Week 6, Assignment 2 - Due Week 11. Total contribution from two assignments is 40%. These assignments will comprise problem solving that may include writing reports.

Weighting:

40%

Criteria for assessment:

- ◆ OCS: Through the tutorial tests students' problem-solving ability will be tested and learning will be reinforced.
- ◆ OCL: In the two the assignments the students will be given problems to solve including writing reports on topics covered, thus testing their problem-solving ability and reinforcing their learning.

Due date:

OCS: Tutorial Tests in weeks 5, 7, 9 and 11; OCL: Assignments 1 and 2 are due in weeks 6 and 11 respectively.

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).

Online submission

If Electronic Submission has been approved for your unit, please submit your work via the VLE site for this unit, which you can access via links in the my.monash portal.

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. For Sunway see <http://www.monash.edu.my/Student-services>, and for South Africa see <http://www.monash.ac.za/current/>

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. At Sunway, visit the Library and Learning Commons at <http://www.lib.monash.edu.my/>. At South Africa visit <http://www.lib.monash.ac.za/>.

Academic support services may be available for students who have a disability or medical condition. Registration with the Disability Liaison Unit is required. Further information is available as follows:

- Website: <http://monash.edu/equity-diversity/disability/index.html>;
- Email: dlu@monash.edu
- Drop In: Equity and Diversity Centre, Level 1 Gallery Building (Building 55), Monash University, Clayton Campus, or Student Community Services Department, Level 2, Building 2, Monash University, Sunway Campus
- Telephone: 03 9905 5704, or contact the Student Advisor, Student Community Services at 03 55146018 at Sunway

Other Information

Reading list

Note: In lecture notes further references will be listed.