MONASH University
Information Technology

FIT1031
Computers and networks

Unit Guide

Semester 2, 2013

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, 2013

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)
- Gippsland (Off-campus)
- Sunway (Day)

Contact Hours

2 hr lectures/wk, 2 hr tutorial/wk

Workload requirements

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

For on-campus students:
Lectures: 2 hours per week
Tutorials/Lab 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.

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

Prohibitions

FIT1001

Chief Examiner

Dr Sid Ray

Campus Lecturer

Clayton

Sid Ray

Gippsland

Sid Ray

Sunway

Eng Keong Lua

Consultation hours: One hour per week

Tutors

Clayton

Ananya Behera

Marc Cheong

Gopal Gupta

Abdul Malik Khan

Manoj Kathpalia - Admin Tutor

Academic Overview

Learning 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.

Unit Schedule

Week	Activities	Assessment
0	Orientation Week: Follow the Orientation Week program	No formal assessment or activities are 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)	Assessment Task 1: Test 1
6	Memory Components - Organization, Primary Memory, Cache Memory, Virtual Memory	
7	Operating Systems (OS) - Introduction to OS, Types and Activities of OS	Assessment Task 2: Test 2
8	Networking Concepts	
9	Models of Communications & Networking	Assessment Task 3: Test 3
10	Transport Layer and TCP	
11	Addressing Mechanism & Routing Strategies and LAN	Assessment Task 4: Test 4
12	Revision and Discussion on Exam Preparation	
	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.

Assessment Summary

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

Assessment Task	Value	Due Date
Test 1: Basic Concepts of Computing Systems	10%	Week 5
Test 2: Boolean Algebra, Digital Logic and Computer Architecture	10%	Week 7
Test 3: Memory Organization and Operating Systems	10%	Week 9
Test 4: Computer Networks - Concepts, Addressing Mechanisms & Routing Strategies and LAN	10%	Week 11
Examination 1	60%	To be advised

Teaching Approach

Assessment Requirements

Assessment Policy

Faculty Policy - Unit Assessment Hurdles
(http://www.infotech.monash.edu.au/resources/staff/edgov/policies/assessment-examinations/unit-assessment-hu

Academic Integrity - Please see the Demystifying Citing and Referencing tutorial at
http://lib.monash.edu/tutorials/citing/

Assessment Tasks

Participation

- *On-campus* students are expected to participate in group discussion during tutorial sessions.
- *Off-campus* students are expected to participate in on-line discussion forums.

- **Assessment task 1**

  Title:
  Test 1: Basic Concepts of Computing Systems
  Description:
  Assessment on the topics of:

  - ♦ Introduction to computing Systems and
  - ♦ Data representation and Computer Arithmetic

  Weighting:
  10%
  Criteria for assessment:
  Through Test 1 students' problem-solving ability will be tested on the topics listed.
  Due date:
  Week 5

- **Assessment task 2**

  Title:
  Test 2: Boolean Algebra, Digital Logic and Computer Architecture
  Description:
  Assessment on the topics of:

  - ♦ Boolean Algebra,
  - ♦ Digital Logic, and
  - ♦ Computer Architecture including Instruction Set Architecture

  Weighting:
  10%
  Criteria for assessment:
  Through Test 2 students' problem-solving ability will be tested on the topics listed.
  Due date:
  Week 7

- **Assessment task 3**

  Title:
  Test 3: Memory Organization and Operating Systems
  Description:
  Assessment on the topics of:

  - ♦ Memory Organization,
  - ♦ Primary Memory, Cache Memory and Virtual Memory,
  - ♦ Operating Systems - Introduction, Types and Activities

  Weighting:
  10%
  Criteria for assessment:
  Through Test 3 students' problem-solving ability will be tested on the topics listed.
  Due date:
  Week 9

- **Assessment task 4**

  Title:
  Test 4: Computer Networks - Concepts, Addressing Mechanisms & Routing Strategies and LAN
  Description:
  Assessment on the topics of:

  - ♦ Networking Concepts,
  - ♦ Models of Communications and Networking,
  - ♦ Addressing Mechanisms & Routing Strategies, and
  - ♦ Local Area Networks

  Weighting:
  10%
  Criteria for assessment:
  Through Test 4 students' problem-solving ability will be tested on the topics listed.
  Due date:
  Week 11

Examinations

- **Examination 1**

  Weighting:
  60%
  Length:
  3 hours
  Type (open/closed book):
  Closed book
  Hurdle requirements:

  - ♦ In-semester assessment: 40%
  - ♦ Exam: 40%

  Electronic devices allowed in the exam:

None

Learning resources

Reading list

- Electronic resources including book chapters, questions and their solutions, and links to other relevant resources will be made available on the unit Moodle site.
- A list of recommended text books is included under the item "Recommended text(s)".

Monash Library Unit Reading List
http://readinglists.lib.monash.edu/index.html

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

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.

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

Online submission

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

Recommended text(s)

Linda Null and Julia Lobur. (2012). *Essentials of Computer Organization and Architecture*. (3rd 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*. (5th Edition) Pearson (ISBN: 0-13-136548-7).

Jerry Fitzgerald and Alan Dennis. (2009). *Business Data Communications and Networking*. (10th Edition) John Wiley and Sons (ISBN: 978-0470-05575-5).

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:

- Aademic integrity;
  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
- Code of Practice for Teaching and Learning;
  http://www.policy.monash.edu.au/policy-bank/academic/education/conduct/suppdocs/code-of-practice-teac

Graduate Attributes Policy

http://www.policy.monash.edu/policy-bank/academic/education/management/monash-graduate-attributes-policy.ht

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 Sunway 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 Sunway, 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.htmlTelephone: 03 9905 5704 to book an appointment with a DLO; or contact the Student Advisor, Student Commuity Services at 03 55146018 at SunwayEmail: dlu@monash.eduDrop In: Equity and Diversity Centre, Level 1, Building 55, Clayton Campus, or Student Community Services Department, Level 2, Building 2, Monash University, Sunway Campus

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

Based on previous student feedback this unit is considered to be appropriately structured and no changes have been made for this semester.

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