MONASH University
Information Technology

FIT1031
Computers and networks

Unit Guide

Semester 2, 2014

Last updated: 18 Jul 2014

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FIT1031 Computers and networks - Semester 2, 2014

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)
- Malaysia (Day)

Workload Requirements

Minimum total expected workload equals 12 hours per week comprising:

(a.) Contact hours for on-campus students:

- Two hours of lectures
- One 2-hour tutorial

(b.) Study schedule for off-campus students:

- Off-campus students generally do not attend lecture and tutorial sessions, however should plan to spend equivalent time working through the relevant resources.

(c.) Additional requirements (all students):

- A minimum of 8 hours of personal study per week for completing tutorial questions, private study and revision.

Additional workload requirements

*S*tudents are expected to participate in group discussions during tutorial sessions.

Unit Relationships

Prohibitions

FIT1001

Chief Examiner

Dr Sid Ray

Campus Lecturer

Clayton

Sid Ray

Consultation hours: One hour per week

Gippsland

Guojun Lu

Malaysia

Nik Nailah Abdullah

Consultation hours: TBA

Tutors

Clayton

To be announced

Malaysia

Nik Nailah Abdullah

Consultation hours: TBA

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

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)	Test 1
6	Memory Components - Organization, Primary Memory, Cache Memory, Virtual Memory	
7	Operating Systems (OS) - Introduction to OS, Types and Activities of OS	Test 2
8	Networking Concepts	
9	Models of Communications & Networking	Test 3
10	Transport Layer and TCP	
11	Addressing Mechanism & Routing Strategies and LAN	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.

Teaching Approach

Lecture and tutorials or problem classes

This teaching and learning approach helps students to intially encounter information at lectures, discuss and explore the information during tutorials, and practice in a hands-on lab environment.

*S*tudents are expected to participate in group discussions during tutorial sessions.

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

Unit Schedule

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

Assessment Requirements

Assessment Policy

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

Academic Integrity - Please see resources and tutorials at
http://www.monash.edu/library/skills/resources/tutorials/academic-integrity/

Assessment Tasks

Participation

- **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:
  Your 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:
  Your 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:
Your 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:
Your 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:

Assessment Requirements

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 (if applicable to the unit)
http://readinglists.lib.monash.edu/index.html

Faculty of Information Technology Style Guide

Feedback to you

Examination/other end-of-semester assessment feedback may take the form of feedback classes, provision of sample answers or other group feedback after official results have been published. Please check with your lecturer on the feedback provided and take advantage of this prior to requesting individual consultations with staff. If your unit has an examination, you may request to view your examination script booklet, see
http://intranet.monash.edu.au/infotech/resources/students/procedures/request-to-view-exam-scripts.html

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/student-academic-integrity-managing-pla
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. (2014). *Essentials of Computer Organization and Architecture*. (4th Edition) Jones and Bartlett Learning (ISBN: 978-1-4496-2063-9).

James F. Kurose and Keith W. Ross. (2012). *Computer Networkings: A Top-Down Approach*. (6th 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:

- Student Academic Integrity Policy and Student Academic Integrity: Managing Plagiarism and Collusion Procedures ; 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

Faculty resources and policies

Important student resources including Faculty policies are located at http://intranet.monash.edu.au/infotech/resources/students/

Graduate Attributes Policy

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

Student Charter

www.opq.monash.edu.au/ep/student-charter/monash-university-student-charter.html

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 Malaysia 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 Malaysia, 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.html
- Telephone: 03 9905 5704 to book an appointment with a DLO; or contact the Student Advisor, Student Commuity Services at 03 55146018 at Malaysia
- Email: dlu@monash.edu
- Drop In: Equity and Diversity Centre, Level 1, Building 55, Clayton Campus, or Student Community Services Department, Level 2, Building 2, Monash University, Malaysia Campus