



**MONASH** University  
Information Technology

**FIT1001**  
**Computer systems**

**Unit Guide**

**Semester 1, 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.

*Last updated: 27 Feb 2011*

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# **FIT1001 Computer systems - Semester 1, 2011**

This unit will introduce students to basic computer hardware and operating systems software with emphasis on the concepts required to understand the low-level and internal operations of computer systems. In particular, this includes study of data representation, simple digital logic, computer organisation including CPU, memory and input/output devices, as well as system software and operating system concepts. The intention is to provide opportunities for students to relate the hardware knowledge covered in this unit to the concepts learned in their introductory programming and systems analysis classes and to give a more complete understanding of how hardware and software are used to build systems. This provides opportunities for students to relate the use of programming languages and studies of system design and project management to their implementation on computer hardware.

## **Contact Hours**

2 hrs lectures/wk, 2 hrs tutorials/wk

## **Workload**

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

This will include:

Lectures: 2 hours per week

Tutorials: 2 hours per week per tutorial

and up to an additional 8 hours in each week for completing private study and revision.

## **Unit Relationships**

### **Prohibitions**

CSE1201, CPE1002, GCO2812

### **Chief Examiner**

Dengzheng Zhang

### **Campus Lecturer**

### **Gippsland**

Dengsheng Zhang

### **Tutors**

## Gippsland

Dengsheng Zhang

## Learning Objectives

At the 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 knowledge of Internal Bus, Memory, I/O organisations and interfacing standards;
- describe the internal operation of the CPU and explain how it is used to execute instructions;
- demonstrate an understanding of the basics of operating systems and system software; and
- identify factors that affect computer performance.

## 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): 70%; In-semester assessment: 30%

<b>Assessment Task</b>	<b>Value</b>	<b>Due Date</b>
Assignment 1	15%	Weeks 6
Assignment 2	15%	Week 12
Examination 1	70%	To be advised

## Teaching Approach

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:

- Graded assignments with comments
- 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

**Null L., Lobur J.,** *Essentials of Computer Organization and Architecture*, second edition, Jones and Bartlett (2006) ISBN 0-7637-3769-0.

### Unit Schedule

Week	Date*	Activities	Assessment
0	21/02/11		No formal assessment or activities are undertaken in week 0
1	28/02/11	Introduction and Basic concepts of computing	
2	07/03/11	Data Representation & Arithmetic	
3	14/03/11	Data Representation & Arithmetic	
4	21/03/11	Boolean algebra & Digital Logic	
5	28/03/11	Boolean algebra & Digital Logic	
6	04/04/11	Computer Architecture	Assignment 1
7	11/04/11	Computer Architecture	
8	18/04/11	Instruction set Architecture	
Mid semester break			

9	02/05/11	Instruction set Architecture	
10	09/05/11	Memory components	
11	16/05/11	System software	
12	23/05/11	Operating systems	Assignment 2
	30/05/11	SWOT VAC	No formal assessment is undertaken SWOT VAC

\*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:**

Assignment 1

**Description:**

Assessment of Lecture topic 1-3

**Weighting:**

15%

**Criteria for assessment:**

1. Assignment 1 consists of a number of short numerical and logical calculation questions.
2. Total marks are 100
3. Students must obtain 50 marks out of 100

**Due date:**

Weeks 6

**Remarks:**

• **Assessment task 2**

**Title:**

Assignment 2

**Description:**

Assessment of Lecture topic 4-7

**Weighting:**

15%

**Criteria for assessment:**

1. Assignment 1 consists of a number of short answer questions.
2. Total marks are 100
3. Students must obtain 50 marks out of 100

**Due date:**

Week 12

**Remarks:**

## Examinations

• **Examination 1**

**Weighting:**

70%

**Length:**

3 hours

**Type (open/closed book):**

Closed book

**Electronic devices allowed in the exam:**

None

**Remarks:**

exam hurdle 40% of exam mark

## 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-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>)

## 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](http://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](mailto:dlu@monash.edu)
- Drop In: Equity and Diversity Centre, Level 1 Gallery Building (Building 55), Monash University, Clayton Campus.

## READING LIST

**A. S. Tanenbaum**, *Structured Computer Organization*, 5th Edition, Pearson Prentice-Hall, 2006, ISBN 0-13-148521-0

**S. G. Shiva**, *Computer Organization, Design and Architecture*, 4th Edition, CRC Press, 2008, ISBN 13-978-0-8493-0416-3



- W. Stallings**, *Computer Organization and Architecture*, 7th Edition, Pearson Prentice-Hall, 2006, ISBN 0-13-185644-8
- S. D. Burd**, *Systems Architecture*, 5th edition, Thomson Course Technology, 2006, ISBN 0-619-21692-1
- S. Dandamudi**, *Fundamentals of Computer Organization and Design*, Springer, ISBN 0-387-95211-X
- I. Englander**: *The Architecture of Computer Hardware and Systems Software*, 3rd Edition, Wiley, 2003, 0-471-07325-3
- W. Stallings**, *Operating Systems Internals and Design Principles*, 5th edition, Pearson Prentice Hall, 2005, ISBN 0-13-127837-1
- A. S. Tanenbaum**, *Modern Operating Systems*, 2nd edition, Prentice Hall, 2001, ISBN 0-13-092641-8

Last updated: 16 Jun 2010