MONASH University

FIT1001
Computer systems

Unit guide

Semester 1, 2009

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FIT1001 Computer systems - Semester 1, 2009

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Introduction

Welcome to FIT1001, Computer Systems for Semester 1, 2009. This 6 point unit is core to all undergraduate degree programs in the Faculty of IT. This unit has been designed to provide you with an appreciation of the architecture and operations of a computer system and its system software.

Unit synopsis

FIT1001 Computer Systems 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 operating systems and system software 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.

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.
- demonstrate an understanding of the basics of operating systems and system software.
- identify factors that affect computer performance.

Workload

For on campus students, workload commitments are:

- two one-hour lectures per week
- 11 two-hour tutorials, starting in week 2.
- a minimum of 1.5 hours of personal study per 1 hour of contact time in order to satisfy the reading and assignment expectations.This gives a total of at least 6 hours of study per week.

Unit relationships

Prerequisites

There are no prerequisites for this unit.

Relationships

FIT1001 is a core unit of the Bachelor of Information Technology, Bachelor of Computer Science, Bachelor of Business Systems and Bachelor of Software Engineering. It is a prerequisite for many subsequent units in the remainder of these degrees. There are no prerequisites for this unit.

Continuous improvement

Monash is committed to ‘Excellence in education’ (Monash Directions 2025 - http://www.monash.edu.au/about/monash-directions/directions.html) and strives for the highest possible quality in teaching and learning.

To monitor how successful we are in providing quality teaching and learning Monash regularly seeks feedback from students, employers and staff. One of the key formal ways students have to provide feedback is through Unit Evaluation Surveys. The University’s Unit Evaluation policy (http://www.policy.monash.edu/policy-bank/academic/education/quality/unit-evaluation-policy.html) requires that every unit offered is evaluated each year. Students are strongly encouraged to complete the surveys as they are an important avenue for students to “have their say”. The feedback is anonymous and provides the Faculty with evidence of aspects that students are satisfied and areas for improvement.

Faculties have the option of administering the Unit Evaluation survey online through the my.monash portal or in class. Lecturers will inform students of the method being used for this unit towards the end of the semester.

Student Evaluations

If you wish to view how previous students rated this unit, please go to
http://www.adm.monash.edu.au/cheq/evaluations/unit-evaluations/

Unit staff - contact details

Unit leader

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Additional communication information

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Teaching and learning method

Communication, participation and feedback

Monash aims to provide a learning environment in which students receive a range of ongoing feedback throughout their studies. You will receive feedback on your work and progress in this unit. This may take the form of group feedback, individual feedback, peer feedback, self-comparison, verbal and written feedback, discussions (on line and in class) as well as more formal feedback related to assignment marks and grades. You are encouraged to draw on a variety of feedback to enhance your learning.

It is essential that you take action immediately if you realise that you have a problem that is affecting your study. Semesters are short, so we can help you best if you let us know as soon as problems arise. Regardless of whether the problem is related directly to your progress in the unit, if it is likely to interfere with your progress you should discuss it with your lecturer or a Community Service counsellor as soon as possible.

Unit Schedule

Week	Topic	Study guide	Key dates
1	Introduction and Basic concepts of computing	LN 1	
2	Data Representation & Arithmetic	LN 1 and LN 2	
3	Data Representation & Arithmetic	LN 2	
4	Boolean algebra & Digital Logic	LN 2 and LN 3	
5	Boolean algebra & Digital Logic	LN 3	Tutorial test on LN1 & LN2
6	Computer Architecture	LN 3 and LN 4	
Mid semester break			
7	Computer Architecture	LN 4	
8	Instruction set Architecture	LN 4 and LN 5	Tutorial test on LN3
9	Instruction set Architecture	LN 5	mid-semester test
10	Memory components	LN 6	Tutorial test on LN4 & LN5
11	System software	LN 6 and LN 7	
12	Operating systems	LN 8	Tutorial test on LN6 & LN7
13	Revision	All	

Unit Resources

Prescribed text(s) and readings

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

Text books are available from the Monash University Book Shops. Availability from other suppliers cannot be assured. The Bookshop orders texts in specifically for this unit. You are advised to purchase your text book early.

Recommended text(s) and readings

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

Study resources

Study resources we will provide for your study are:

7 Lecture Notes and 11 tutorial sheets will be made available to the students via the FIT1001 MUSO website.

Short extracts from a number of text books will be made available to all students via the FIT1001 MUSO website.

The FIT1001 web site on MUSO, where lecture slides, tutorial exercises, practical assignment specifications, sample solutions, software and supplementary material will be available.

Newsgroups and eMail discussion lists available via the FIT1001 unit web site.

Library access

The Monash University Library site contains details about borrowing rights and catalogue searching. To learn more about the library and the various resources available, please go to http://www.lib.monash.edu.au.

The Educational Library and Media Resources (LMR) is also a very resourceful place to visit at http://www.education.monash.edu.au/library/

Monash University Studies Online (MUSO)

All unit and lecture materials are available through MUSO (Monash University Studies Online). Blackboard is the primary application used to deliver your unit resources. Some units will be piloted in Moodle. If your unit is piloted in Moodle, you will see a link from your Blackboard unit to Moodle (http://moodle.monash.edu.au) and can bookmark this link to access directly. In Moodle, from the Faculty of Information Technology category, click on the link for your unit.

You can access MUSO and Blackboard via the portal: http://my.monash.edu.au

Click on the Study and enrolment tab, then Blackboard under the MUSO learning systems.

In order for your Blackboard unit(s) to function correctly, your computer needs to be correctly configured.

For example:

- Blackboard supported browser
- Supported Java runtime environment

For more information, please visit: http://www.monash.edu.au/muso/support/students/downloadables-student.html

You can contact the MUSO Support by phone : (+61 3) 9903 1268

For further contact information including operational hours, please visit:
http://www.monash.edu.au/muso/support/students/contact.html

Further information can be obtained from the MUSO support site:
http://www.monash.edu.au/muso/support/index.html

Assessment

Unit assessment policy

The unit is assessed with 4 tutorial class tests, a one hour mid-semester test and a three hour closed book examination. To pass the unit:

- Your marks must average to at least 50.
- Your exam marks must be at least 40.
- Failure to meet the hurdles will result in a maximum of 44N.

Assignment tasks

- ### Assignment Task

  Title : Four tutorial tests on LN1 and LN2, LN3, LN4 and LN5, LN6 and LN7 (On-campus students only)

  Description :

  Closed-book test held during the tutorial. 1 hour duration.
  Weighting : 5% each test

  Criteria for assessment :

  Due date : Weeks 5, 8, 10 and 12

  Remarks (optional - leave blank for none) :

  OCL students will be asked to complete two assignments in place of all on-campus tests (details see the remarks section of the next assignment task.
- ### Assignment Task

  Title : TEST (on-campus students only)

  Description :

  Closed-book test held during the lecture. 1 hour duration.
  Weighting : 10%

Criteria for assessment :

Due date : Week 9

Remarks (optional - leave blank for none) :

OCL students will be asked to complete two assignments, each with a weighting of 15% in place of all the on-campus tests.

Assignment 1: due Week 8

Assignment 2: due Week 12

Examinations

- **Examination 1**

Weighting : 70%

Length : 3 hours

Type (open/closed book) : closed book

Remarks (optional - leave blank for none) :

exam hurdle 40% of exam mark

University and Faculty policy on assessment

Due dates and extensions

The due dates for the submission of assignments are given in the previous section. Please make every effort to submit work by the due dates. It is your responsibility to structure your study program around assignment deadlines, family, work and other commitments. Factors such as normal work pressures, vacations, etc. are seldom regarded as appropriate reasons for granting extensions. Students are advised to NOT assume that granting of an extension is a matter of course.

Students are allowed to attend tutorial tests **only** in the tutorial where they are enrolled.

Late assignment

Return dates

Students can expect assignments to be returned within two weeks of the submission date or after receipt, whichever is later.

Assessment for the unit as a whole is in accordance with the provisions of the Monash University Education Policy at http://www.policy.monash.edu/policy-bank/academic/education/assessment/

We aim to have test results made available to you within two weeks after the test.

Plagiarism, cheating and collusion

Plagiarism and cheating are regarded as very serious offences. In cases where cheating has been confirmed, students have been severely penalised, from losing all marks for an assignment, to facing disciplinary action at the Faculty level. While we would wish that all our students adhere to sound ethical conduct and honesty, I will ask you to acquaint yourself with the University Plagiarism policy and procedure (http://www.policy.monash.edu/policy-bank/academic/education/conduct/plagiarism-procedures.html) which applies to students detected plagiarising.

In this University, cheating means seeking to obtain an unfair advantage in any examination or any other written or practical work to be submitted or completed by a student for assessment. It includes the use, or attempted use, of any means to gain an unfair advantage for any assessable work in the unit, where the means is contrary to the instructions for such work.

When you submit an individual assessment item, such as a program, a report, an essay, assignment or other piece of work, under your name you are understood to be stating that this is your own work. If a submission is identical with, or similar to, someone else's work, an assumption of cheating may arise. If you are planning on working with another student, it is acceptable to undertake research together, and discuss problems, but it is not acceptable to jointly develop or share solutions unless this is specified by your lecturer.

Intentionally providing students with your solutions to assignments is classified as "assisting to cheat" and students who do this may be subject to disciplinary action. You should take reasonable care that your solution is not accidentally or deliberately obtained by other students. For example, do not leave copies of your work in progress on the hard drives of shared computers, and do not show your work to other students. If you believe this may have happened, please be sure to contact your lecturer as soon as possible.

Cheating also includes taking into an examination any material contrary to the regulations, including any bilingual dictionary, whether or not with the intention of using it to obtain an advantage.

Plagiarism involves the false representation of another person's ideas, or findings, as your own by either copying material or paraphrasing without citing sources. It is both professional and ethical to reference clearly the ideas and information that you have used from another writer. If the source is not identified, then you have plagiarised work of the other author. Plagiarism is a form of dishonesty that is insulting to the reader and grossly unfair to your student colleagues.

Register of counselling about plagiarism

The university requires faculties to keep a simple and confidential register to record counselling to students about plagiarism (e.g. warnings). The register is accessible to Associate Deans Teaching (or nominees) and, where requested, students concerned have access to their own details in the register. The register is to serve as a record of counselling about the nature of plagiarism, not as a record of allegations; and no provision of appeals in relation to the register is necessary or applicable.

Non-discriminatory language

The Faculty of Information Technology is committed to the use of non-discriminatory language in all forms of communication. Discriminatory language is that which refers in abusive terms to gender, race, age, sexual orientation, citizenship or nationality, ethnic or language background, physical or mental ability, or political or religious views, or which stereotypes groups in an adverse manner. This is not meant to preclude or inhibit legitimate academic debate on any issue; however, the language used in such debate should be non-discriminatory and sensitive to these matters. It is important to avoid the use of discriminatory language in your communications and written work. The most common form of discriminatory language in academic work tends to be in the area of gender inclusiveness. You are, therefore, requested to check for this and to ensure your work and communications

are non-discriminatory in all respects.

Students with disabilities

Students with disabilities that may disadvantage them in assessment should seek advice from one of the following before completing assessment tasks and examinations:

- Faculty of Information Technology Student Service staff, and / or
- your Unit Coordinator, or
- Disabilities Liaison Unit

Deferred assessment and special consideration

Deferred assessment (not to be confused with an extension for submission of an assignment) may be granted in cases of extenuating personal circumstances such as serious personal illness or bereavement. Information and forms for Special Consideration and deferred assessment applications are available at http://www.monash.edu.au/exams/special-consideration.html. Contact the Faculty's Student Services staff at your campus for further information and advice.