Introduction

Welcome to FIT9010, Computer Systems for Semester 1, 2010. FIT9010 is a core unit introduced in the Master of Applied IT program in the Faculty of Information Technology (FIT). This unit has been designed to provide you with an appreciation of the internal architecture and operations of a computer system and its operating system software. Students will be expected to use the theoretical knowledge and concepts presented in lectures to practical applications and understand critical factors that affect computer performance.

Unit synopsis

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 machine-level and assembly language programming, and operating system concepts with examples of process management, file system structures and user interfaces.

Learning outcomes

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 detailed 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;
- differentiate between machine language and assembly language and write assembly language programs to solve simple problems;
- demonstrate an understanding of the basics of operating systems software using examples from File Systems, User Interfaces and Software Development Tools;
- identify factors that affect computer performance;
- use various simulators to demonstrate the operation of simple computer architectures.

Workload

12 hours per week. This includes going through lectures; doing tutorials, laboratories and individual study.

Unit relationships

Prohibitions

GCO9802
Teaching and learning method

Teaching approach

- Study guides/Lectures
- Laboratories and Tutorials
- Unit also available in OCL mode, involving printed notes and/or on-line materials and internet based discussion groups.

Study guides/Lectures will be used to present concepts and the relationships between ideas, and so guide the student through a structured outline of the material derived from, but not necessarily identical to that provided by the text books and online resources. Tutorials and hands-on Laboratory sessions will be used to link the theory with practice and enhance the students understanding. Software tools, such as simulators with visual interfaces, will be employed to illustrate these concepts and help develop understanding.

Timetable information

For information on timetabling for on-campus classes please refer to MUTTS, http://mutts.monash.edu.au/MUTTS/

Tutorial allocation

On-campus students should register for tutorials/laboratories using the Allocate+ system: http://allocate.its.monash.edu.au/

Off-Campus Learning or flexible delivery

Unit also available in OCL mode, involving printed notes and/or on-line materials and internet based discussion groups

Unit Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Date*</th>
<th>Topic</th>
<th>Study guide</th>
<th>Key dates</th>
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<tr>
<td>1</td>
<td>01/03/10</td>
<td>Introduction and Basic concepts of computing</td>
<td>LN 1</td>
<td></td>
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<tr>
<td>2</td>
<td>08/03/10</td>
<td>Data Representation &amp; Arithmetic</td>
<td>LN 1 and LN 2</td>
<td></td>
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<tr>
<td>3</td>
<td>15/03/10</td>
<td>Data Representation &amp; Arithmetic</td>
<td>LN 2</td>
<td></td>
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<tr>
<td>4</td>
<td>22/03/10</td>
<td>Boolean algebra &amp; Digital Logic</td>
<td>LN 2 and LN 3</td>
<td></td>
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<tr>
<td>5</td>
<td>29/03/10</td>
<td>Boolean algebra &amp; Digital Logic</td>
<td>LN 3</td>
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<td></td>
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<td>Mid semester break</td>
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<tr>
<td>6</td>
<td>12/04/10</td>
<td>Computer Architecture</td>
<td>LN 3 and LN 4</td>
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<tr>
<td>7</td>
<td>19/04/10</td>
<td>Computer Architecture</td>
<td>LN 4</td>
<td>Assignment 1 Due</td>
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<tr>
<td>8</td>
<td>26/04/10</td>
<td>Instruction set Architecture</td>
<td>LN 4 and LN 5</td>
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<td>9</td>
<td>03/05/10</td>
<td>Instruction set Architecture</td>
<td>LN 5</td>
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<tr>
<td>10</td>
<td>10/05/10</td>
<td>Memory components</td>
<td>LN 6</td>
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<td>11</td>
<td>17/05/10</td>
<td>System software</td>
<td>LN 6 and LN 7</td>
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<tr>
<td></td>
<td>Date</td>
<td>Topic</td>
<td>Location</td>
<td>Event</td>
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<td>12</td>
<td>24/05/10</td>
<td>Operating systems</td>
<td>LN 8</td>
<td>Assignment 2 Due</td>
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<tr>
<td>13</td>
<td>31/05/10</td>
<td>Revision</td>
<td>All</td>
<td></td>
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</table>

*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.*
Unit Resources

Prescribed text(s) and readings


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


Study resources

Study resources we will provide for your study are:

8 Lecture Notes and 11 tutorial sheets will be made available to the students via the FIT9010 Moodle website.

Short extracts from a number of text books will be made available to all students via the FIT9010 Moodle website.

The FIT9010 web site on Moodle, 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 FIT9010 unit web site.
Assessment

Overview

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

Faculty 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.

Assignment tasks

Assignment coversheets

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.

Assignment submission and return procedures, and assessment criteria will be specified with each assignment.

• Assignment task 1
  
  Title: Assignment 1  
  Description: Assessment of LN1, 2, 3 and 4  
  Weighting: 15%  
  Due date: Weeks 7

• Assignment task 2
  
  Title: TEST  
  Description: Assessment of LN5,6,7&8  
  Weighting: 15%  
  Due date: Week 12
Examination

- **Weighting:** 70%
  - **Length:** 3 hours
  - **Type (open/closed book):** closed book
- **Remarks:**
  - exam hurdle 40% of exam mark

See Appendix for End of semester special consideration / deferred exams process.

Due dates and extensions

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 not regarded as appropriate reasons for granting extensions. Students are advised to NOT assume that granting of an extension is a matter of course.

Students requesting an extension for any assessment during semester (eg. Assignments, tests or presentations) are required to submit a Special Consideration application form (in-semester exam/assessment task), along with original copies of supporting documentation, directly to their lecturer within two working days before the assessment submission deadline. Lecturers will provide specific outcomes directly to students via email within 2 working days. The lecturer reserves the right to refuse late applications.

A copy of the email or other written communication of an extension must be attached to the assignment submission.

Refer to the Faculty Special consideration webpage or further details and to access application forms: [http://www.infotech.monash.edu.au/resources/student/equity/special-consideration.html](http://www.infotech.monash.edu.au/resources/student/equity/special-consideration.html)

Return dates

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

Please visit the following URL: http://www.infotech.monash.edu.au/units/appendix.html for further information about:

- Continuous improvement
- Unit evaluations
- Communication, participation and feedback
- Library access
- Monash University Studies Online (MUSO)
- Plagiarism, cheating and collusion
- Register of counselling about plagiarism
- Non-discriminatory language
- Students with disability
- End of semester special consideration / deferred exams