London South Bank University | School of Engineering

Module Guide

Media, Computers & Networks

BIF_4_MCN

Moodle site: 15/16, Media, Computers & Networks

School of Engineering

2015-16

Level 4

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1. MODULE DETAILS

Module Title:	Media, Computers & Networks
Module Level:	4
Module Reference Number:	BIF_4_MCN
Credit Value:	20
Student Study Hours:	200
Contact Hours:	65
Private Study Hours:	135
Pre-requisite Learning (If applicable):	none
Co-requisite Modules (If applicable):	none
Course(s):	4350.1, 4156.2
Year and Semester	2015-16, Semester 1
Module Coordinator (MC):	Martin Bush
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Teaching Team & Contact Details:	See last page of this document
Subject Area:	Computer Science and Informatics
Summary of Assessment Method:	Coursework only
External Examiner appointed for module:	Robin Heath, University of Brighton

2. SHORT DESCRIPTION

This module introduces the overall structure and operation of the computer systems and networks found in all areas of business and daily life. Emphasis is given to the different types of information that must be stored and processed, and how this information is distributed over different types of network. You will gain an appreciation of the difference between high-level and low-level programming languages and how program instructions are executed at the machine level. The role of operating systems, peripherals, and networking hardware and software will be introduced.

3. AIMS OF THE MODULE

This module will provide you with a sufficient understanding of data formats, computer communications and computer architecture to enable you to make informed decisions on issues such as the selection or design of a suitable system for a given task or the impact of a hardware upgrade on overall system performance. By the end of the module you will also have sufficient understanding of the related terminology in order to read, understand and produce technical reports and to converse with businesspeople, technical staff and users about computer-related issues.

4. LEARNING OUTCOMES

4.1 Knowledge and Understanding

On completion of the module you will be able to:

- describe the configuration and operation of typical computer systems and networks for a range of practical applications.

4.2 Intellectual Skills

On completion of the module you will be able to:

- identify, analyse and synthesise information from a number of sources to aid decision making.

4.3 Practical Skills

On completion of the module you will be able to:

- specify the configuration of various computer system components in accordance with given requirements.

4.4 Transferable Skills

On completion of the module you will be able to:

- research and record information and references to support your learning.

5. ASSESSMENT OF THE MODULE

The assessment is 100% coursework. There will be three in-class multiple-choice tests held during the tutorial sessions, nominally in weeks 7, 11 and 15.

In this module we will be using subset selection tests, which are a generalisation of traditional multiple-choice tests that cater for the situation in which a test taker can identify one or two wrong answers for a given question but not the right answer. Subset selection tests yield comparable but more reliable test scores as compared with traditional multiple-choice tests because the test takers are no longer required to choose between alternative answers which they favour equally. Research has shown that this also makes the test format less stressful for students. The marking scheme is as follows:

- correct answer only selected => 1 mark
- correct answer plus one wrong answer => 0.5
- correct answer plus two wrong answers => 0.33
- no answers selected => 0.25
- any other response => 0

Each test will contain 20 questions; the best two test scores (both out of 20) will be doubled and added to the worst test score in order to arrive at the overall module score. This module is primarily designed to impart knowledge and understanding, rather than skills, across a wide range of topics – consistent with expectations at Level 4. Multiple-choice tests are therefore an appropriate method of assessment, because they are able to assess knowledge and understanding in all of the areas covered by the module in an efficient manner.

6. FEEDBACK

Feedback will normally be given within one week of submission of each in-class test, if not immediately.

7. INTRODUCTION TO STUDYING THE MODULE

7.1 Overview of the Main Content

The module will cover the following topics:

- Data representation for a range of common data types
- Data processing operations, Binary arithmetic
- Processor operation and the fetch/execute cycle, simple processor operation and assembly language programming
- Case study – x86 architecture and assembly language
- Computer memory
- Parallel and Serial Input/Output
- Principles of Data Transmission and Networking, Introduction to IP addressing and protocols

- Function of the Operating System in managing system resources
- Security essentials.

7.2 Overview of Types of Classes

The module will be taught using lectures and tutorials in a 1:4 ratio. Following an initial overview, the lectures examine all of the key parts of networked computer systems; their structure, operation and interactions. After each lecture you are expected to complete the associated tutorial questions in order to develop and reinforce your understanding of the principles involved. The tutorials form an important part of the module, allowing further investigation and discussion of the lecture topics and associated mathematical concepts. The tutorial questions associated with each topic will include practical exercises that provide some hands-on experience to complement the theoretical concepts. The module Moodle site will contain specific resources for each of the topics covered, including links to additional web-based resources. The practical exercises are designed to be capable of completion from any standard PC with an internet connection.

7.3 Importance of Student Self-Managed Learning Time

You are reminded that you should spend on average 12-14 hours per week in self-study, including further reading based on the lecture materials and the completion of tutorial and practical exercises. You should also keep a workbook in which to record the answers to, and results of, tutorial questions and exercises. This workbook will not be formally assessed, but it will be monitored by your tutor.

7.4 Employability

This module will introduce you to a range of basic concepts and common terminology in relation to computer systems, in line with the expectations of typical employers. It will provide a foundation for your future studies and professional life by enabling you to have a better understanding of the technical literature aimed at IT professionals.

8. THE PROGRAMME OF TEACHING, LEARNING AND ASSESSMENT

The material will be split into 12 weekly topics in three blocks of 4 weeks each, as follows:

- Weeks 3-6: Computer Systems & Data
- Weeks 7-10: Microprocessors, Memory & Input-Output
- Weeks 11-14: Operating Systems, Networks & The Internet.

Weekly teaching and learning programme (Indicative):

Week	Lecture/Tutorial Topic	Assessment
1	*Induction*	
2	*Induction*	
3	Introduction to Computer Systems	
4	Data Representation	
5	Data Manipulation	
6	Peripheral Devices	
7	Microprocessors	Test 1

8	Assembly Language: Intel x86	
9	Memory (inc. cache memory)	
10	Input-Output	
11	Operating Systems	Test 2
12	Memory & File Management	
13	Computer Networks	
14	The Internet	
15	*Review*	Test 3

9. STUDENT EVALUATION

Last year 86% of students agreed or strongly agreed with the statement “Overall, my experience of this module was good”.

10. LEARNING RESOURCES

10.1 Core Materials

No single textbook has been found that is suitable as the core text for this module. Detailed lecture notes (with links to web pages giving further info) and tutorial/homework exercises will be provided.

10.2 Optional Materials

There are many textbooks available that would be suitable for background reading, such as:

Burd, S. D. (2016) *Systems Architecture* (7th edition), Cengage Learning
…or the 6th edition, 2010, would be fine too.

Patterson, D. A. & Hennessy, J.L. (2013) *Computer Organization and Design: The Hardware / Software Interface*, (5th edition), Morgan Kaufmann

Chalk, B., Carter A. & Hind, T. (2003) *Computer Organisation and Architecture*, (2nd edition), Palgrave Macmillan

NOTES

TEACHING TEAM

Tutor	**Email address**
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