

Module Title	Media, Computers and Networks
Level	4
Reference No.	BIF-4-MCN
Credit Value	20
Student Study Hours	Total: 200 Contact hours: 65 Student managed learning hours: 135
Pre-requisite Learning	None
Co-requisites	None
Excluded combinations	None
Module co-ordinator	M Bush
Faculty/Department	Informatics
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
Aims	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 particular 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.
Learning Outcomes	<p>Knowledge and understanding. On completion of the module you will be able to:</p> <ul style="list-style-type: none"> Describe the configuration and operation of typical computer systems and networks for a range of practical applications <p>Intellectual skills. On completion of the module you will be able to:</p> <ul style="list-style-type: none"> Identify, analyse and synthesise information from a number of sources to aid decision making <p>Practical skills. On completion of the module you will be able to:</p> <ul style="list-style-type: none"> Specify the configuration of various computer system components in accordance with given requirements <p>Transferable skills. On completion of the module you will be able to:</p> <ul style="list-style-type: none"> Research and record information and references to support your learning
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.
Teaching and learning pattern	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 Blackboard/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.
Indicative content	<p>Data representation and manipulation: binary, hexadecimal, 2's complement representation of integers, ASCII and Unicode, representations of images, audio and video, arithmetic and logical operations, binary and floating point arithmetic</p> <p>Computer hardware: core hardware components of a computer system, basics of integrated circuit technology and Moore's Law, CPU internals and the fetch-execute cycle, case study – x86 architecture and instruction set, examples of peripheral devices and how they operate, comparison of different types of primary and secondary memory, cache memory, input/output, and the role of peripheral interfaces</p> <p>Software: main features of computer operating systems, simple assembly/machine language programming, system security</p> <p>Computer networks: basic principles of packet switched networks, wired vs wireless networks, introduction to network management, security issues</p>
Assessment	<p>The assessment is 100% coursework. There will be three in-class multiple-choice tests held during the tutorial sessions, nominally in weeks 5, 9 and 13. 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.</p>
Indicative Sources (Reading lists)	<p>No single textbook has been found that is suitable as the core text for this module, however the syllabus can be covered by a combination of textbooks such as:</p> <p>Burd, S. (2011) <i>Systems Architecture</i> (6th edition), Cengage Learning Chalk, B., Carter A. & Hind, T. (2003) <i>Computer Organisation and Architecture</i>, Palgrave Macmillan Saltzer, J. & Kaashoek, M. (2009) <i>Principles of Computer Systems Design</i>, Morgan Kaufmann Williams, R. (2006) <i>Computer Systems Architecture – A Networking Approach</i> (2nd edition), Addison Wesley</p> <p>In addition to textbooks, students will be expected to refer to web-based information sources as required.</p>