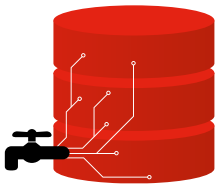
CTI Higher Certificate in Information Technology (Information Systems)



Module Descriptions 2015

Higher Certificate in Information Technology (Information Systems)

(1 year full-time)

Academic English

Module description

This module aims to the student opportunities to develop an understanding of the concepts and issues relating to English in an academic context, as well as the practical skills to translate that understanding into writing and communicating in English appropriately and effectively.

Apart from learning how to use English in an academic context, Academic English will enable you to acquire the necessary language, reading, thinking and writing skills which form the foundation of all professional and vocational communication in life. The module strives to reinforce your language and grammar skills, to develop your reading and thinking skills, as well as to shape your ability to plan, research and provide information professionally in the business environment. Consequently, emphasis is placed on three primary areas: language, reading and comprehension and academic writing.

Computer Skills Development

Module description

The main purpose of the module is to supply students with an outline of computer skills development in the form of basic concepts and procedures. The module aims to provide practical use of computer applications to create, manage and format data by developing word processing, spreadsheet, presentation and database skills in a Windows OS environment.

Within the field of IT, there is often the need to carry out tasks using the internet, word processors, spreadsheets or databases. This module provides students with the necessary skills to effectively carry out these everyday tasks.

This module introduces students to Microsoft's Office applications to enable them to carry out these tasks. As students' progress, they will use the skills they have learnt to successfully access the internet and be able to create and edit documents using Microsoft Word. They will be introduced to spreadsheets through Microsoft Excel and be able to create and edit spreadsheets that contain both graphs and formulae. By using Microsoft Access, students will gain an overview of relational database terms and concepts and be able to create tables, run queries and display results using Access reports. This module is designed as an introductory module to provide the basis upon which more advanced tasks can be accomplished once more experience and practice has been gained.

Computer Systems

Module description

The aim of this module is to enable students to understand computer systems and apply their theoretical knowledge to practical applications when building, configuring and maintaining computer systems.

Most Information Technology (IT) professionals will, at some stage, have to set up, use, customise and maintain computer systems. In order to do so effectively, they will need to understand how computer systems work. Students will develop an understanding of the theoretical aspects of computer systems and how information is processed. This module will explore the hardware, software and peripheral components that make up such a system.

There are many different manufacturers of computer systems and each will produce a wide range of models with different specifications. Deciding which particular model is appropriate for a given situation depends on a variety of factors. Custom-built computer systems are also an advantage when meeting specialised requirements while maintaining performance and keeping costs low. These aspects will be explored in this module so that students can make informed choices when designing a computer system for a given purpose.

Students will also be able to apply their theoretical knowledge to practical application by building, configuring and testing a functional computer system, which will need to meet a given specification.

Computer users, further, need the skills required to set up and perform routine maintenance on computer systems. Although this module does not extensively cover fault finding and repair, it does include the basic maintenance skills that would normally be expected of most computer users.

Human Computer Interaction

Module description
This module aims to explore recent Human Computer Interaction (HCI) developments and techniques, approaches and principles that inform the development of an effective human computer interface.

As technology moves forward, new methods of communicating with computer systems are becoming possible. Developers need to make reasoned choices as to the nature and appropriateness of the interface they are developing or using, in order to ensure that the user interaction is as natural, efficient and effective as possible. This requires a good understanding of the essentials of HCI and of the latest developments. A long-term goal of HCI is to design systems that minimise barriers between the human's cognitive model of what they want to do and the computer's understanding of the user's intent.

Students will be encouraged to explore the detail of how users interact with software, how the interface works to help fulfil the user needs and how it makes allowances for different users. Students will develop a critical appreciation of the advantages and disadvantages of various interfaces currently available and develop an HCI using an appropriate programming language or software tool.

Introduction to Databases

Module description
The scope of this module covers basic database design, management and administration using MS Access. The fundamental concepts of databases are introduced and a foundation is laid. All concepts taught are translated into practice using MS Access. This is an introductory module that builds up to other modules. The concepts taught are database basics. The module scope introduces the students to a practical interaction of the application using mostly wizards and the graphical user interface (GUI).

Databases play an integral part in commercial domains, they provide users with a tool in which to store, model and retrieve data. Database development is fundamental in the area of computing and ICT within organisational contexts. Database Management Systems (DBMS) provide the systems, tools and interfaces by which the organisation can manage their information and use it to assist in the effective running of the organisation. Databases offer many links to other areas such as programming, systems analysis, HCI, as well as embracing issues of compatibility and end-user interfacing.

This module introduces database architecture, DBMS and the use of databases in an organisational context. Database design techniques are investigated and successful students will be able to apply theoretical understanding to design, create and document a database system.

Introduction to Information Systems

Module description
The aim of this module is to provide students with an understanding of how organisations use information systems to help them manage their specific needs.

Information is the most valuable resource that an organisation possesses. The effective gathering, protection, analysis, processing and dissemination of information is vital to the success of any organisation. As globalisation and the 24-hour economy develop and increase, organisations must ensure that their information systems are reliable, efficient and able to cope with rapid change.

Organisations whose information systems previously dealt purely with data processing have now introduced those supporting strategic management and decision support. Managers at all levels need appropriate and timely information to plan successfully in the short, medium and long term, and that information can have many sources and destinations. As organisations diversify and de- centralise, information also needs to be available to many non-managerial staff in a variety of locations. The logical conclusion is that an organisation is now completely dependent on the effectiveness of its information systems in order to survive and thrive in the 21st century business environment.

Students will begin this module by analysing the information needs of an organisation at different levels and within different functional areas. It is important that computing professionals are able to understand how an organisation works and how it uses information, in order to be able to design, implement, maintain and manage systems to support its operation.

On completion of this module, students will understand the importance of effective information systems to an organisation. They will be aware of the variety of options available for information processing and know that these will inevitably change over time. They will also use an information system to produce management information.

Introduction to Programming

Module description

The aim of the module is to prepare students to the world of programming, giving them the foundation of programming basics. Thus the ability to use various platforms to create real life programs with the use of languages such as C#, C++, and Java.

The student will understand the basic knowledge of general principles and the concepts of programming.

Students will develop programs and although the content could be delivered from a range of languages, compilers or platforms, the module should aim to deliver skills and knowledge that will easily transfer to other areas of the qualification life cycle.

Students will adopt good practice while designing programs using industry techniques. The student will also use variables, constants and literals. The student will understand the concepts of data storage within a computer program and identify or select appropriate iterative and selection structures when writing simple programs. In addition to the above, the student will learn the facilities and rules of the language e.g. operators, and I/0 commands and make use of comments and code layout.

The student will use or create both predefined and user-defined functions and procedures, and map structured design onto a program using functions or procedures, passing data by value and reference, create software applications e.g. a word processor or graphics, analysis, design and implementation of documentation, professional standards. Students will test the data and schedules e.g. black box, white box, dry testing, and data collection.

Mathematics for Information Technology

Module description

This module is designed to provide you with a better understanding of mathematical concepts. It is designed to move away from the traditional emphasis on memorisation and manipulation of formulae. The module will help in the application of the common mathematical concepts as well as in appreciating their application in everyday life in this complex society.

This module is an introduction to basic mathematical concepts and techniques that will be required by software engineers. Students undertaking this module, will develop a range of mathematical skills and will explore areas of mathematics that are often applied in solving everyday problems and used to support programming. Topics that are covered by this module include basic algebra, functions, relations, geometry, statistics, set theory, propositional calculus, and elementary logic.

Networking Technologies

Module description

The aim of this module is to provide a background to the basic components of networked systems from which all networking operations derive. It also includes the evaluation of networks and network applications.

To enable students to understand computer networking concepts, how they function and operate, and the protocols, standards and the models associated with networking technology. Understanding of the underlying principles of networking is of vital importance to all IT professionals in an environment that is increasingly complex and under continuous development.

Students taking this module will explore a range of hardware and technologies, culminating in the design and deployment of a networked system. Working with many technologies, this module informs the design, selection, implementation and support of a variety of network systems, including local area networks and larger scale wider area networked systems. Supporting a range of modules in the qualification, this module underpins the principles of networks for all and enables students to work towards their studies in other modules, if applicable.

Personal Skills Development

Module description

The aim of this module is to provide students with the basic knowledge and skills to assess, develop and implement their own employability and personal professional development plan to be ready for an eventual career choice. The module will help students understand methods through which they can take corrective action and measure their success rate. This will include the ability to determine strategies and strategic planning methods, team management and teamwork. Students will be taught methods to achieve time line management. The module will also lead them to understand why they need to monitor and control their progress in achieving the implemented goals associated with their employability and professional development plan.

Visual Programming Fundamentals

Module description

This module concentrates on the fundamentals of visual programming: the principles of event-driven programming, designing the user interface and writing the program code to add the application functionality. The module provides a grounding for more advanced work in visual programming, including ActiveX, object orientation and component-based development (COM). This module presents opportunities to demonstrate key skills in information technology, improving own learning and performance and problem solving.