

# UNIVERSITY OF NORTHAMPTON

## **Name of course: Bachelor of Science (Hons) Computing Module Description**

### **[CSY1017] COMPUTER COMMUNICATIONS**

This module provides basic knowledge of the hardware and software components that make up computer communication. Modern computer networks not only consist of just the computer, but also include a range of network devices. The module gives: an overview of all the important concepts in preparation for a deeper study of computer communication; appropriate practical skills related to computer networking; a comprehensive and broad understanding of the theory of computer networking.

### **[CSY1014] COMPUTER SYSTEMS**

This module provides basic knowledge of the hardware and software components that make up a computer system. Modern computer systems not only consist of just the computer, but also include a range of peripherals. The module gives an overview of all the important concepts in preparation for a deeper study of computer systems. Learning environments are offered to enable students to gain a basic comprehension, understanding and appreciation of computer system concepts and technologies, and the skills to use them to the best effect.

### **[CSY1018] WEB DEVELOPMENT**

This purpose of this (Level 4) module is to give students an understanding of client-side web technologies. This module provides students with: the essential knowledge and practical skills to design, develop and implement a Web site to contemporary web standard; an overview of the Internet technologies, the overall software architecture of the Internet including servers, clients, browsers, is covered leading to the use of a Web server to install, maintain and publish Web Pages to achieve Web presence; standard client side dynamic web development environment such as HTML, Cascading Style Sheets (CSS), and JavaScript are covered in detail.

### **[CSY1019] SOFTWARE ENGINEERING**

The module will introduce students to the Software Engineering lifecycle. Focusing on: investigating a problem domain, eliciting software requirements, preparing a requirement specification document, performing system design and presenting them to clients; introduce students to the skills, principles and concepts necessary to implement solutions; use of a high level programming language to implement algorithms; a late-objects approach will be adopted to teach programming.

### **[CSY1020] PROBLEM SOLVING AND PROGRAMMING**

This module introduces students to the skills, principles and concepts necessary to solve problems in computing; develop essential skills to enable the solution of these problems with the construction of appropriate algorithms and a computer program; introduce principles underlying the design of a high-level programming language (HLPL)

**Updated on 28 July 2023**

### **[CSY1026] DATABASE 1**

The purpose of this module is to: understand and apply the principles of database integrity in the design and practical development of database structures. Database 1 is a hands-on module that applies data modelling techniques to establish, modify and maintain database integrity and data structures and associated components such as entities, relationships, and attribute definitions.

### **[CSY2002] OPERATING SYSTEMS**

The purpose of this module is to give an understanding of the theory, application, structure and design principles of operating systems. This module requires a significant practical element delivered as formal laboratory sessions.

### **[CSY2027] GROUP PROJECT**

The module is designed to develop higher order intellectual skills (problem solving) and appropriate personal qualities including team working. Each group will develop and document effective, robust and high-quality computing systems to a professional standard in response to a supplied specification of requirements. Each student's contribution to the team effort will be the subject of peer assessment moderation.

### **[CSY2061] MOBILE APPLICATION DEVELOPMENT**

This module is designed to give an understanding of the technologies (hardware/software) and how these are utilized in a modern network. This understanding is then use to develop the necessary skills to design and implement (programming) software to be deployed within modern networks.

### **[CSY2028] WEB PROGRAMMING**

This purpose of this (Level 5) module is to: give students and understanding of the concepts and technologies of web-based server-side technologies; teach students to use up-to-date programming techniques to design and develop coherent server side software for websites with added security, functionality and usability; design software focusing on the processing of information on the web server; develop real server side applications.

### **[CSY2009] DATABASE 2**

To develop the fundamental concepts and skills of Entity Relational Models (ERMs) and Structured Query Language (SQL). It focuses on the key areas of extended-relational databases; user-defined types, their practical creation, application along with valuable data extraction methods to provide intelligence. Database programming (PL/SQL) is introduced. The module employs industry standard software to achieve the maximum economic salability.

### **[CSY2030] SYSTEM DESIGN AND DEVELOPMENT**

This purpose of this module is to: extend and apply system design and development to large scale systems; explore building GUIs and exploit the resources offered by class libraries so that the idea of specifying general software components and implementing re-usable classes will become familiar.; provide a tools and skills set which the student will require when s/he encounters larger design projects, in later software development domains.

### **[CSY4010] COMPUTING DISSERTATION**

A dissertation or major project report containing details of the methodology, results and conclusion including explanations of all hardware and software used, circuit and system diagrams, program listings, justifications of all decisions made etc.

### **[CSY3010] MEDIA TECHNOLOGY**

Media Technology is an important aspect to Computer Science. This Media Technology module is designed to introduce the technology relevant to multi-media systems. This includes computer graphics, text, audio and video. Media manipulation techniques are studied. Media compression techniques are also investigated. In addition, the module provides an insight into colour spaces and their relevance. The module develops a framework from which the student can develop multimedia systems in a third-generation computer language.

### **[CSY3023] CYBER SECURITY AND CRYPTOGRAPHY**

The purpose of this module is to build upon concepts and skills introduced in the first- and second-year modules and address the issues of effective Cybersecurity. Recognizing the rapidly growing in importance of this area, the module aims to provide the student with the necessary practical skills and theoretical understanding of the technologies used to secure communications and protect the privacy of users within an online environment.

### **[CSY3024] DATABASE 3**

The purpose of this module is: to study advanced database topics. It assumes that the students have studied the earlier database modules and have technical knowledge of the basic processing performed by a modern relational DBMS, together with practical skills in designing metadata and appropriate software modules from modern client/server database platform.

### **[CSY3025] ARTIFICIAL INTELLIGENCE TECHNIQUES**

The purpose of this module is to: teach students the fundamental theory and practical applications of knowledge-based systems, artificial neural networks and evolutionary algorithms. The underpinning concepts will be introduced, followed by examples of how intelligent systems are used in engineering or games applications.