Core Introductory Units

Virtual Reality Technology
This unit will explore the exciting field of virtual reality and the advanced concepts and technologies for interfacing humans to complex machines. The course will focus on virtual interfaces and their potential impact on the way we think about computers and the way we think with them. VisionSpace will be used for teaching, demonstration and practical applications.

Augmented Reality Technology
This unit will explore the exciting field of augmented reality and the advanced concepts and technologies for interfacing humans to complex machines. Hardware, software and mindware aspects of augmented reality environments will be investigated. Creating content for augmented reality applications for the fields of mobile, outdoor and wearable applications will be discussed. ARToolKit will be used for teaching, demonstration and practical applications.

Programming & Problem Solving
This is the first programming unit. You might think that you know how to program already, but this unit teaches you to program in a systematic manner with a design that reflects the structure of the problem to be solved. Currently the programming language used is Java.

Programming with Data Structures
This unit is not just about learning more Java. Its proper focus is on how to develop programs that fulfill specifications and are properly tested. At the same time you learn about the different way data can be organised in programs.

Elective Introductory Computing Units

Web Management
Students will gain an understanding of the management issues associated with designing and developing content for a website. In this unit you will learn the technologies used for Web application development. The unit includes the introduction of Web related protocols, advanced HTML/XHTML.

Computer Systems Fundamentals
This unit introduces you to foundation concepts of modern computer systems architectures and their operating systems.

Core Intermediate Units

User Interface Design
This unit looks at common trends and practices of interface and usability design for interactive entertainment and interactive media technology.

Fundamentals of Interactive Entertainment
This unit will provide students with an understanding and overview of interactive entertainment and new media from the perspective of the developer, storyteller, designer, artist and audience. This unit will provide students with the theories, tools and techniques to create and analyse stories that can be told as digital interactive games, animated films, immersive experiences or various forms of mixed reality design to help them in the analysis of properties and the creation of new ones.

Algorithms
Some programs tackle tasks that would take several years to solve with a simple approach, but can be solved within seconds with a smart approach. This unit will teach you the data structures, algorithms and techniques for writing programs that work smarter rather than harder. You will also learn how to analyse programs so that you can make an informed choice about which algorithm to use for a particular problem.
ICT Project Management
The ICT profession is largely people centered rather than technology centered. You have to be able to communicate your expertise. Students will develop skills appropriate to professional computing employment, particularly written, verbal and interpersonal communication skills. Students will also experience the principles, techniques and tools of project management.

Core Advanced Units

Immersive World Project A & B
Students have the opportunity to individually and in groups develop a concept and prototype for presentation and review. This unit will look at some of the practical challenges involved in the creation of immersive worlds such as project management and team dynamics, conceiving and writing of a concept proposal, business assessment and analysis, development of marketing and promotional plan, development of prototypes, and the integration of visual, audio and textual elements into the total user experience.

Designing Immersive Worlds
This unit will look at the design and development of world building online. Course will explore such topics as what is community (online and offline), game communities, MMOs, and social networks. Particular emphasis on communities from both a social and economic perspective. Computer graphics for virtual worlds would be also covered.

Innovation and Entrepreneurship in Interactive Entertainment
This unit will provide an overview of current business models in interactive media and games, state of the game industry, future trends, funding and copyright issues. Course will also look at some of the practical challenges involved in the creation of intellectual properties such as brainstorming, project management and team dynamics, conceiving and writing a concept proposal, business assessment and analysis.

Elective Intermediate & Advanced Units

Computer Networks
The biggest growth area in computing is in networking. In order to make networks work you need to study how data can be transmitted and the various protocols that are used to achieve this. You will also gain practical experience in installing and administering a network.

Computer Security
The threats to computer systems are real. In this unit you will learn about the threats and the people that perpetrate attacks. You study the theoretical techniques that can be used to protect computer systems and networks before examining how some of these can be applied.

Advanced Dynamic Web Development
This unit is about the latest techniques used in web page development. Currently it focuses on the development of interactive sites.

Artificial Intelligence
No one has yet made a C3PO-like multi-lingual intelligent robot, but the study of Artificial Intelligence has led to more useful robots and better language-related applications. In this unit you study the core concepts of AI and are introduced to the techniques used in various sub-fields such as expert systems, machine learning, computer vision and robotics.

Mobile and Ubiquitous Computing
This unit studies how mobile communications are achieved: the technology and digital protocols used by mobile phones and how mobile communications fit into a traditional wired network structure such as the internet.

Computer Graphics & Animation
Students in this unit produce incredible assignments of animated shapes and characters. You study the algorithms and object-oriented programming techniques used to create these, and you have ample opportunity to practice.

Human Computer Interface
Students are introduced to the main issues and insights in human-computer interaction (HCI). HCI is the inter-disciplinary field that looks at supporting the various ways people interact with computers including, but not limited to, traditional desktop computers, web interfaces, ubiquitous computing, mixed reality and mobile computing.

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