School of Computer Science

Important Degree Information:

B.Sc./M.A. Honours
The general requirements are 480 credits over a period of normally 4 years (and not more than 5 years) or part-time equivalent; the final two years being an approved honours programme of 240 credits, of which 90 credits are at 4000 level and at least a further 120 credits at 3000 and/or 4000 levels. Refer to the appropriate Faculty regulations for lists of subjects recognised as qualifying towards either a B.Sc. or M.A. degree.

B.Sc./M.A. Honours with Integrated Year Abroad
The general requirements are 540 credits over a period of normally 5 years (and not more than 6 years) or part-time equivalent; the final three years being an approved honours programme of 300 credits, of which 60 credits are gained during the integrated year abroad, 90 credits are at 4000 level and at least a further 120 credits at 3000 and/or 4000 levels. Refer to the appropriate Faculty regulations for lists of subjects recognised as qualifying towards either a BSc or MA degree.

Other Information: In the case of students who spend part of the Honours Programme abroad on a recognised Exchange Scheme, the Programme Requirements will be amended to take into account courses taken while abroad.

Degree Programmes	Programme Requirements at:
(B.Sc. Honours): **Computer Science**	**Single Honours Computer Science (B.Sc. Honours):** **Level 1:** At least 40 credits consisting of CS1002, CS1004 and (either CS1010 or appropriate mathematics background) **Level 2:** 60 credits consisting of passes in both CS2001 and CS2002, at grade 11 or better except with the Head of School's permission **Level 3:** Normally in the Junior Honours year, 120 credits, consisting of: - 30 credits from CS3001–CS3099 - 60 credits from CS3101–CS3199 - 30 credits from CS3201–CS3299 **Level 4:** Normally in the Senior Honours year, 120 credits, consisting of: - 45 credits from CS4001–CS4099 - 45 (or more) credits from CS4101–CS4199 and CS4201–CS4299, including 30 (or more) credits from CS4201–CS4299 - remaining credits from CS3001–CS4999

Degree Programmes	Programme Requirements at:
(B.Sc. Honours): **Computer Science and one of Chemistry, Economics, Logic & Philosophy of Science, Management, Management Science, Mathematics, Physics and Statistics** **Computer Science and Geoscience** (not available to students who enter the University after 2002)	**Computer Science element of Joint Degree (B.Sc. Honours):** **Level 1:** At least 40 credits consisting of CS1002, CS1004 and (either CS1010 or appropriate mathematics background) **Level 2:** 60 credits consisting of passes in both CS2001 and CS2002, at grade 11 or better except with the Head of School's permission **Level 3:** Normally in the Junior Honours year, 60 credits, consisting of: - 15 credits from CS3099 - 45 credits from CS3051, CS3101–CS3199 and CS3201–CS3299, including 15 (or more) credits from CS3201–CS3299 **Level 4:** Normally in the Senior Honours year, 60 credits, consisting of: - 15 (or more) credits from CS4076–CS4099 - 30 (or more) credits from CS4101–CS4199, CS4201–CS4299, including 15 (or more) credits from CS4201–CS4299 - remaining credits from CS3001–CS4999
(B.Sc. Honours): **Computer Science and Psychology**	**Computer Science element of Joint Degree (B.Sc. Honours):** **Level 1:** At least 40 credits consisting of CS1002, CS1004 and (either CS1010 or appropriate mathematics background) **Level 2:** 60 credits consisting of passes in both CS2001 and CS2002, at grade 11 or better except with the Head of School's permission **Level 3:** Normally in the Junior Honours year, 45 credits, consisting of: - 15 credits from CS3051 – CS3099 - 30 credits from CS3101 – CS3299 **Level 4:** Normally in the Senior Honours year, 45 credits, consisting of: - 15 credits from CS4076–CS4099 - 30 credits from CS4051 and CS4101–CS4499 Note: The total Honours credits in Computer Science and in Psychology must equal or exceed 240.
(B.Sc. Honours): **Computer Science with one of French^, German^, Linguistics, Russian^ and Spanish^** ^ - available also as 'With Integrated Year Abroad Degree'	**Computer Science element of Major degree with Modern Languages:** **Level 1:** At least 40 credits consisting of CS1002, CS1004 and (either CS1010 or appropriate mathematics background) **Level 2:** 60 credits consisting of passes in both CS2001 and CS2002, at grade 11 or better except with the Head of School's permission **Level 3:** Normally in the Junior Honours year, 90 credits, consisting of: - 30 credits from CS3001–CS3099 - 30 or 45 credits from CS3101–CS3199 - remaining credits from CS3201–CS3299 **Level 4:** Normally in the Senior Honours year, 90 credits, consisting of: - 15 (or more) credits from CS4076–CS4099 - 45 (or more) credits from CS4101–CS4199 and CS4201–CS4299, including 15 (or more) credits from CS4201–CS4299 - remaining credits from CS3001–CS4999

Degree Programmes	Programme Requirements at:
(M.A. Honours): **Integrated Information Technology and one of Ancient History, Art History, Biblical Studies, Classical Studies, Classics, Film Studies, Greek, Latin, Management and Theological Studies.** These programmes are not available from 2006/07 except to students specifically admitted to such a programme.	Integrated Information Technology element of Joint Honours M.A. Degree: **Level 1:** None (in this subject) **Level 2:** None (in this subject) **Level 3:** 120 credits, consisting of IS3001 and IS3002 **Level 4:** None (in this subject)
(B.Sc. Honours): **Internet Computer Science**	**Single Honours Internet Computer Science B.Sc. Degree:** **Level 1:** At least 40 credits consisting of CS1002, CS1004 and (either CS1010 or appropriate mathematics background) **Level 2:** 60 credits consisting of passes in both CS2001 and CS2003, at grade 11 or better except with the Head of School's permission **Level 3:** Normally in the Junior Honours year, 120 credits, consisting of: - 30 credits from CS3001–CS3099 - 60 credits from CS3101–CS3199 - 30 credits from CS3301–CS3399 **Level 4:** Normally in the Senior Honours year, 120 credits, consisting of: - 45 credits from CS4001–CS4099 - 45 (or more) credits from CS4101–CS4199 and CS4301–CS4399, including 30 (or more) credits from CS4301–CS4399 - remaining credits from CS3001–CS4999
(B.Sc. Honours): **Internet Computer Science and one of Chemistry, Economics, Logic & Philosophy of Science, Management, Management Science, Mathematics, Physics and Statistics**	**Internet Computer Science element of Joint Honours B.Sc. Degrees:** **Level 1:** At least 40 credits consisting of CS1002, CS1004 and (either CS1010 or appropriate mathematics background) **Level 2:** 60 credits consisting of passes in both CS2001 and CS2003, at grade 11 or better except with the Head of School's permission **Level 3:** Normally in the Junior Honours year, 60 credits, consisting of: - 15 credits from CS3099 - 45 credits from CS3051, CS3101–CS3199 and CS3301–CS3399, including 15 (or more) credits from CS3301–CS3399 **Level 4:** Normally in the Senior Honours year, 60 credits, consisting of: - 15 (or more) credits from CS4076–CS4099 - 30 (or more) credits from CS4101–CS4199, CS4301–CS4399, including 15 (or more) credits from CS4301–CS4399 - remaining credits from CS3001–CS4999

Degree Programmes	Programme Requirements at:
(B.Sc. Honours): **Internet Computer Science with one of French^, German^, Linguistics, Russian^ and Spanish^** ^ also available as 'With Integrated Year Abroad Degree'	**Internet Computer Science element of Major Degree (B.Sc. Honours)** **Level 1:** At least 40 credits consisting of CS1002, CS1004 and (either CS1010 or appropriate mathematics background) **Level 2:** 60 credits consisting of passes in both CS2001 and CS2003, at grade 11 or better except with the Head of School's permission **Level 3:** Normally in the Junior Honours year, 90 credits, consisting of: - 30 credits from CS3001–CS3099 - 30 or 45 credits from CS3101–CS3199 - remaining credits from CS3301–CS3399 **Level 4:** Normally in the Senior Honours year, 90 credits, consisting of: - 15 (or more) credits from CS4076–CS4099 - 45 (or more) credits from CS4101–CS4199 and CS4301–CS4399, including 15 (or more) credits from CS4301–CS4399 - remaining credits from CS3001–CS4999

Modules

Normally the prerequisite for each of the following Honours modules is entry to the Honours Programme(s) for which it is specified, as well as any additional specific prerequisite(s) given.

General Degree students wishing to enter 3000 modules and non-graduating students wishing to enter 3000 or 4000 level modules must consult with the relevant Honours Adviser within the School before making their selection.

Computer Science (CS) Modules

CS3051 Software Engineering

Credits:	15.0	Semester:	1

Prerequisites:	CS2001 and (CS2002 or CS2003)

Description:	This module introduces software engineering through lectures, associated practical work, seminar reports and essays. We define software engineering and consider those attributes of software which distinguish a well-engineered system from a badly-engineered system, concentrating on the differences between large systems and small ones, and introduce some concepts of software design and good programming practice. We will concentrate in particular on object-oriented techniques and Java programming.

Class Hour:	To be arranged.

Teaching:	Two lectures, fortnightly tutorial, two-and-a-half hour practical.

Assessment:	Continuous Assessment = 40%, 2 Hour Examination = 60%

CS3099 Software Team Project

Credits:	15.0	Semester:	Whole Year

Availability: Not available to General Degree Students

Prerequisites: CS2001 and (CS2002 or CS2003)

Description: This module aims to allow students to take part in a substantial software engineering project as part of a team, using professional development techniques. Each team will specify, plan, design, implement and document a medium-sized software system under the guidance of a member of staff. Teams are required to cooperate in order to produce successful solutions. Typically, the software system will simulate a real world problem, proposed by the module co-ordinator acting as a customer.

Class Hour: To be arranged.

Teaching: Weekly seminars and practical classes.

Assessment: Continuous Assessment = 100%

CS3101   Databases

Credits:	15.0	Semester:	TO BE CONFIRMED

Prerequisites: CS2001 and (CS2002 or CS2003)

Description: This module aims (i) to study data models, indexing techniques and query processing; (ii) to study database systems including concurrency, transactions, distribution and recovery. The syllabus includes: data models; indexing, hashing and query processing; concurrency, transactions and recovery; security and integrity.

Class Hour: To be arranged.

Teaching: Two lectures, fortnightly tutorial, two-and-a-half hour practical.

Assessment: Continuous Assessment = 40%, 2 Hour Examination = 60%

CS3102 Data Communications and Networks

Credits:	15.0	Semester:	TO BE CONFIRMED

Prerequisites: CS2001 and (CS2002 or CS2003)

Description: This module aims (i) to introduce the basics of data communications and computer networks, and (ii) to examine network protocols and architectures. The syllabus includes: the concepts of protocols, layered models, resource sharing and standards; transmission media; analog and digital data encoding; reliable communication; error detection and correction; flow control; link-level efficiency and sliding window protocols; medium access control policies and mechanisms; LAN topologies and extended LANS; network topologies, internetworks and network routing; connection-oriented and connectionless networks; transport level protocols; congestion control; QoS for different traffic types; Study of particular networks and protocols such as the traditional telephone network; the Internet; WiFI, FDDI, Ethernet, ISDN, TCP/IP, ATM. Network programming APIs such as sockets.

Class Hour: To be arranged.

Teaching: Two lectures, fortnightly tutorial, two-and-a-half hour practical.

Assessment: Continuous Assessment = 40%, 2 Hour Examination = 60%

CS3103 Graphs and Algorithms

Credits:	15.0	Semester:	TO BE CONFIRMED

Prerequisites: CS2001 and (CS2002 or CS2003)

Description: This module introduces selected concepts and results of graph theory, from both a theoretical and an algorithmic viewpoint, with a particular emphasis on applications to computer networks. Other theoretical topics relevant to computer networks, such as queuing theory, may also be covered. Using, where appropriate, graph theoretic problems as examples, the module will also teach a range of algorithm design paradigms, such as "divide and conquer" and "dynamic programming".

Class Hour: To be arranged.

Teaching: Two lectures, fortnightly tutorial, two-and-a-half hour practical.

Assessment: Continuous Assessment = 40%, 2 Hour Examination = 60%

CS3104 Operating Systems

Credits: 15.0   Semester: TO BE CONFIRMED

Prerequisites: CS2001 and (CS2002 or CS2003)

Description: This module aims (i) to examine in depth the changing role of the operating system; (ii) to study the concept and implementation of *process;* (iii) to study the OS/hardware interface with regard to storage and protection; (iv) to study the techniques developed to achieve safety and throughput in a multitasking system. The syllabus includes: structured computer organisation; process definition and implementation; interprocess communication and synchronisation; review of scheduling; review of file systems; storage management.

Class Hour: To be arranged.

Teaching: Two lectures, fortnightly tutorial, two-and-a-half hour practical.

Assessment: Continuous Assessment = 40%, 2 Hour Examination = 60%

CS3201 Machines and Computation

Credits: 15.0   Semester: TO BE CONFIRMED

Prerequisites: CS2001 and CS2002

Description: This module aims to give an understanding of the foundations of computation including the basic issues in language recognition, with applications in areas such as compiler design, and to introduce general models of computation (Turing machines and others) which illustrate the limits of the power of computers.

Class Hour: To be arranged.

Teaching: Two lectures, fortnightly tutorial, two-and-a-half hour practical.

Assessment: Continuous Assessment = 40%, 2 Hour Examination = 60%

CS3202 Logic, Specification and Verification

Credits: 15.0   Semester: TO BE CONFIRMED

Prerequisites: CS2001 and CS2002

Description: Building on earlier coverage of elementary logic, this module covers the topics of formal proof (including induction), software and hardware specification, validation and verification. A tool such as PVS or Coq will be employed in practical work.

 Class Hour: To be arranged.

Teaching: Two lectures, fortnightly tutorial, two-and-a-half hour practical.

Assessment: Continuous Assessment = 40%, 2 Hour Examination = 60%

CS3301 Component Technology

Credits: 15.0   Semester: TO BE CONFIRMED

Prerequisites: CS2001 and CS2003

Description: The module will provide students with a knowledge and understanding of current and emerging component technologies. The module is focused on two major themes: Object-Oriented Middleware (OOM) and Message-Oriented Middleware (MOM). In the first theme we examine the evolution of object-oriented programming into (distributed) component models such as The Common Object Request Broker Architecture (CORBA), The Component Object Model (COM), Java Remote Method Invocation (RMI) and Java Beans. The common underlying requirements of these systems will be studied in detail such as naming and binding issues and marshalling and un-marshalling of data. The second theme will explore the emerging field of Message-Oriented Middleware with an in-depth study into current MOM technologies such as Java Messaging System (JMS).

Class Hour: To be arranged.

Teaching: Two lectures, fortnightly tutorial, two-and-a-half hour practical.

Assessment: Continuous Assessment = 40%, 2 Hour Examination = 60%

CS3302 Data Encoding

Credits: 15.0   Semester: TO BE CONFIRMED

Prerequisites: CS2001 and CS2003

Description: This module aims to explain the techniques used to encode data, emphasising in turn the ideas of: security and secrecy, error correcting capabilities, data compression. The syllabus comprises: the weakness of early encryption schemes, the Data Encryption Standard, public key schemes including RSA; attacks on RSA by integer factorisation; Hamming distance, linear codes, parity check equations; Hamming codes, BCH codes; information and uncertainty, run encoding, Huffman encoding.

Class Hour: To be arranged.

Teaching: Two lectures, fortnightly tutorial, two-and-a-half hour practical.

Assessment: Continuous Assessment = 40%, 2 Hour Examination = 60%

CS4051 Professional and Social Aspects of Computing

Credits: 15.0   Semester: Whole Year

Prerequisite: CS3099

Description: This module aims: (i) to enable students to gain a broad general knowledge of some current research areas in computer science and their application in industry and commerce, and the non-technical factors which may affect decision-making in these areas; (ii) to make students aware of the social implications and ethical problems which may face the users and builders of computer systems; (iii) to develop skills in collecting and communicating information, managing and leading debate and drawing conclusions. It will consist of three parts: (i) a series of seminars will be given and students will be required to write short reports on a certain number of these and take part in a follow-up discussion; (ii) students will be required to write an essay on a current technological, business or social issue in computer science; (iii) students will be required to give an individual or team presentation on a social or professional issue in Computer Science, and lead and manage a follow-up discussion.

Teaching: Individual supervision

Assessment: Continuous Assessment = 100%

CS4098 Minor Software Project

Credits: 15.0   Semester: Whole Year

Prerequisite: CS3099

Anti-requisite: CS4099

Description: This module aims to allow students to undertake a substantial software engineering project using professional development techniques. Each student will design, specify and construct a medium-sized software system or undertake a formal development and proof of such a system under the guidance of a member of staff. The syllabus is designed on an individual basis.

Teaching: Individual supervision

Assessment: Continuous Assessment = 100%

CS4099 Major Software Project

Credits: 30.0   Semester: Whole Year

Prerequisite: CS3099

Anti-requisite: CS4098

Description: This module aims to allow students to undertake a substantial software engineering project using professional development techniques. Each student will design, specify and construct a medium-sized software system or undertake a formal development and proof of such a system under the guidance of a member of staff. The syllabus is designed on an individual basis.

Teaching: Individual supervision.

Assessment: Continuous Assessment = 100%

CS4101 Artificial Intelligence

Credits: 15.0   Semester: TO BE CONFIRMED

Prerequisite: CS3099

Description: This module aims to provide understanding of the general features of the A.I. problem solving process, and in particular to explain the various forms of heuristic together with their implementation and case studies of real systems. The syllabus includes aspects of action and planning, learning, reasoning.

Class Hour: To be arranged.

Teaching: Two lectures, fortnightly tutorial, two-and-a-half hour practical.

Assessment: Continuous Assessment = 40%, 2 Hour Examination = 60%

CS4102 Computer Graphics

Credits: 15.0   Semester: TO BE CONFIRMED

Prerequisite: CS3099

Description: The aims of the module are to provide understanding of the fundamental concepts of computer graphics and to develop the ability to apply the concepts to the generation of realistic, synthetic images of 3D objects and scenes. On completion of the module, students should be competent to undertake many tasks in computer graphics, and should have an understanding of the theory underlying many of the relevant techniques. The syllabus includes: 2D graphics: Display technology, perception & colours, basic drawing algorithms, image manipulation; 3D graphics: Coordinate transformation and perspective geometry, hidden surface removal, lighting using local and global illumination models (ray-tracing and radiosity), surface detail (texture and bump mapping), 3D engine overview; Animation: Procedural, spline motion + rotations, articulated models & particle systems, face animation.

Class Hour: To be arranged.

Teaching: Two lectures, fortnightly tutorial, two-and-a-half hour practical.

Assessment: Continuous Assessment = 40%, 2 Hour Examination = 60%

CS4103 Distributed Systems

Credits: 15.0   Semester: TO BE CONFIRMED

Prerequisites: CS3099 and CS3102

Description: This module aims to help students to understand the fundamentals of distributed systems with reference to system models, programming languages, algorithmic techniques, concurrency and correctness. The syllabus covers synchronisation & mutex problems, atomic transactions, topologies, CSP, Internet programming and distributed computing, distributed mutex and logical time & causality.

Class Hour: To be arranged.

Teaching: Two lectures, fortnightly tutorial, two-and-a-half hour practical.

Assessment: Continuous Assessment = 40%, 2 Hour Examination = 60%

CS4104 Human Computer Interaction

Credits: 15.0   Semester: TO BE CONFIRMED

Prerequisites: CS3099 and CS3051

Description: This module covers the main aspects of Human Computer interaction. Design guidelines, structured design methods and standards are studied and practice is given in implementation and evaluation. Students will have experience of current interactive audio, visual and manipulative technologies.

Class Hour: To be arranged.

Teaching: Two lectures, fortnightly tutorial, two-and-a-half hour practical.

Assessment: Continuous Assessment = 40%, 2 Hour Examination = 60%

CS4201 Programming Language Design and Implementation

Credits: 15.0 Semester: TO BE CONFIRMED

Prerequisites: CS3099 and CS2002

Description: This module aims to study the design and implementation of programming languages. The syllabus includes: language design principles, abstract syntax, evaluation mechanisms, binding, type systems, polymorphism, data encapsulation, exceptions, formal definition of programming languages, compiling techniques, abstract machine design, run-time systems and garbage collection.

Class Hour: To be arranged.

Teaching: Two lectures, fortnightly tutorial, two-and-a-half hour practical.

Assessment: Continuous Assessment = 40%, 2 Hour Examination = 60%

CS4202 Computer Architecture

Credits: 15.0 Semester: TO BE CONFIRMED

Prerequisites: CS3099, CS3104 and CS2002

Description: This module aims to study the principles and technology of modern computer architectures, with particular emphasis on performance and acceleration. The syllabus consists of: (i) the CPU: pipelined, superscalar, multiprocessor and supercomputer architectures, coprocessors and ASICs, microprogramming; (ii) memory: instruction and data caches; (iii) interconnect architectures: topologies, buses; (iv) performance concepts: latency, bandwidth and analysis; (v) programming models: RISC, CISC, virtual addressing, high-level language support, multiprogramming and multiprocessor consistency; (vi) case studies.

Class Hour: To be arranged.

Teaching: Two lectures, fortnightly tutorial, two-and-a-half hour practical.

Assessment: Continuous Assessment = 40%, 2 Hour Examination = 60%

CS4203 Computer Security

Credits: 15.0 Semester: TO BE CONFIRMED

Prerequisites: CS3099 and (CS2002 or CS3302)

Description: This module aims to introduce the basic concepts of computer security and cryptography, including common attacks and defences against them, and the legal and policy framework. The syllabus includes: What is security, security applications and policy models. Introduction to access control, typical vulnerabilities. Unix and Internet security, firewalls. intrusion detection, malicious code and countermeasures. Information hiding, Stream ciphers, Block ciphers, Symmetric cryptographic protocols, Asymmetric cryptosystems, Asymmetric cryptographic protocols, Digital signatures, Public key infrastructures, Certification authorities. Security engineering, risk models, robustness, legal and organisational aspects of computer security. Data Protection Act, the Computer Misuse Act, international aspects, export control and key escrow.

Class Hour: To be arranged.

Teaching: Two lectures, fortnightly tutorial, two-and-a-half hour practical.

Assessment: Continuous Assessment = 40%, 2 Hour Examination = 60%

CS4301 Agent Systems and Information Retrieval

Credits: 15.0 Semester: TO BE CONFIRMED

Prerequisites: CS3099 and CS3301

Description: This module looks at some of the fundamental ideas underlying the use of software agents, in particular for information retrieval. Topics covered include: Definition of agents; Successful applications and state-of-the-art agent-based systems; Agent architectures: simple reactive agents, reactive planners, layered architectures, example architectures and applications; Agent theory: beliefs, commitments, desires, intentions, decision-theoretic agents, Markov decision processes; Software agents, personal assistants and information access: collaborative agents, information-gathering agents, believable agents (synthetic characters, modeling emotions in agents); Learning agents; Multi-agent systems: collaborating agents, agent teams, agent modeling, multi-agent learning; Robotic agents; Mobile agents. A tool such as *AgentBuilder* or *Grasshopper* will be used for practical work.

Class Hour: To be arranged.

Teaching: Two lectures, fortnightly tutorial, two-and-a-half hour practical.

Assessment: Continuous Assessment = 40%, 2 Hour Examination = 60%

CS4302   Multimedia

Credits: 15.0   Semester: TO BE CONFIRMED

Prerequisites: CS3099 and CS3102

Description: The module will introduce students to the concepts of analogue and digital media and review current standards and technologies used in the production, transport and rendering of digital multimedia. Within the context of networked multimedia the concept of Quality-of-Service will be introduced and the issues involved in transporting time-sensitive data across computer networks will be explained. Specific examples drawn from Internet-based projects, protocols and standards will be used to illustrate these issues.

Class Hour: To be arranged.

Teaching: Two lectures, fortnightly tutorial, two-and-a-half hour practical.

Assessment: Continuous Assessment = 40%, 2 Hour Examination = 60%

CS4402   Constraint   Programming

Credits: 15.0   Semester: TO BE CONFIRMED

Prerequisites: CS3099

Description: This module introduces constraint-based reasoning as a powerful mechanism for knowledge representation and interference. It provides a thorough grounding in the constraint satisfaction/constrained optimization problem (CSP/COP) formalism, and covers both basic techniuqques for implementing constraint solvers and the use of advanced techniques with a commercial solver.

Class Hour: To be arranged.

Teaching: Two lectures, and fortnightly tutorial

Assessment: Continuous Assessment = 40%, 2 Hour Examination = 60%

CS4499 Computer Science (Special Subject)

Credits: 15.0   Semester: Either

Prerequisites: Entry to the Single Honours Computer Science or Internet Computer Science Honours programme and the consent of the Head of School

Anti-requisite: CS3045

Description: This module is a guided reading module on any aspect of Computer Science not covered by other available modules, intended only for Single Honours students in the School of Computer Science for whom exceptional timetable arrangements (such as a semester or year of absence) restrict the availability of modules unduly.

Class Hour: To be arranged.

Teaching: Tutorials, guided reading, essays, presentations and supervised practicals.

Assessment: Continuous Assessment = 100%

Information Technology (IS) Modules

IS3001 Third Level Information Technology

Credits:	60.0	Semester:	1

Prerequisites: 90 credits in Second level modules in any of the subjects listed in Arts Regulation 2(i)-(vii)

Anti-requisites: IS1001 unless an extra 10 credits are passed or further IT work is undertaken at the discretion of the Head of School; IS1003, IS2001

Description: This module is an intensive practically oriented introduction to information technology, covering systems and networks basics, word processing, spreadsheets, databases, graphics, electronic publishing, the Internet, information retrieval, web site authoring, multimedia, legal and ethical aspects of computing and applications of IT in the arts and social sciences in general.

Class Hour: Full time, Mondays to Fridays

Teaching: lectures, tutorials, seminars and practicals

Assessment: Continuous Assessment = 100%

Re-assessment: Practical and/or oral examination

IS3002 Third Level Information Technology Project

Credits:	60.0	Semester:	2, save with Head of School's permission

Prerequisite: IS3001

Availability: Available only to students already enrolled on an Integrated Information Technology programme.

Description: A work-placement module, for a 'remote supervisor' in the University or in a local enterprise, on an IT topic of likely benefit to the remote supervisor. The topic must be approved by the Head of the School of Computer Science.

Class Hour: Full time, Mondays to Fridays

Teaching: Supervision, technical guidance and day-to-day support provided by the School of Computer Science; lectures on elementary software engineering, some supervision provided by the remote supervisor

Assessment: Project Report = 100%

Re-assessment: Practical and/or oral examination