BSc Hons Computing Science (*with specialism*) (DIS/DAS)

BSc Hons Computing Science (Artificial Intelligence) (DIS/DAS)

BSc Hons Computing Science (Enterprise Technologies) (DIS/DAS)

BSc Hons Computing Science (Healthcare Technologies) (DIS/DAS)

BSc Hons Computing Science (Network Technologies) (DIS/DAS)

Programme Information

- Programme Aims & Objectives
- Programme Structure Diagram
- Teaching and Learning Support Charter
- Programme Specification
- Attendance Monitoring
- Module Overview
- Timetable & Academic Calendar
- Programme Management
- Regulations
- Student Prizes & Awards

Programme Aims & Objectives

The discipline of computing science has underpinned recent technological advances in areas such as software engineering, telecommunications, advanced manufacturing and electronic commerce. The BSc Hons Computing Science, BSc Hons Computing Science (*with specialism*) and BEng Hons Software Engineering courses are closely related programmes of study designed to produce graduates equipped to work as software professionals in the computing industry.

The overall aim of the courses is to provide a broadly-based education in computing science and software engineering which will produce graduates equipped to apply best practice in software engineering to the development of a wide range of information systems in organizations.

In support of this, the courses have the following objectives:

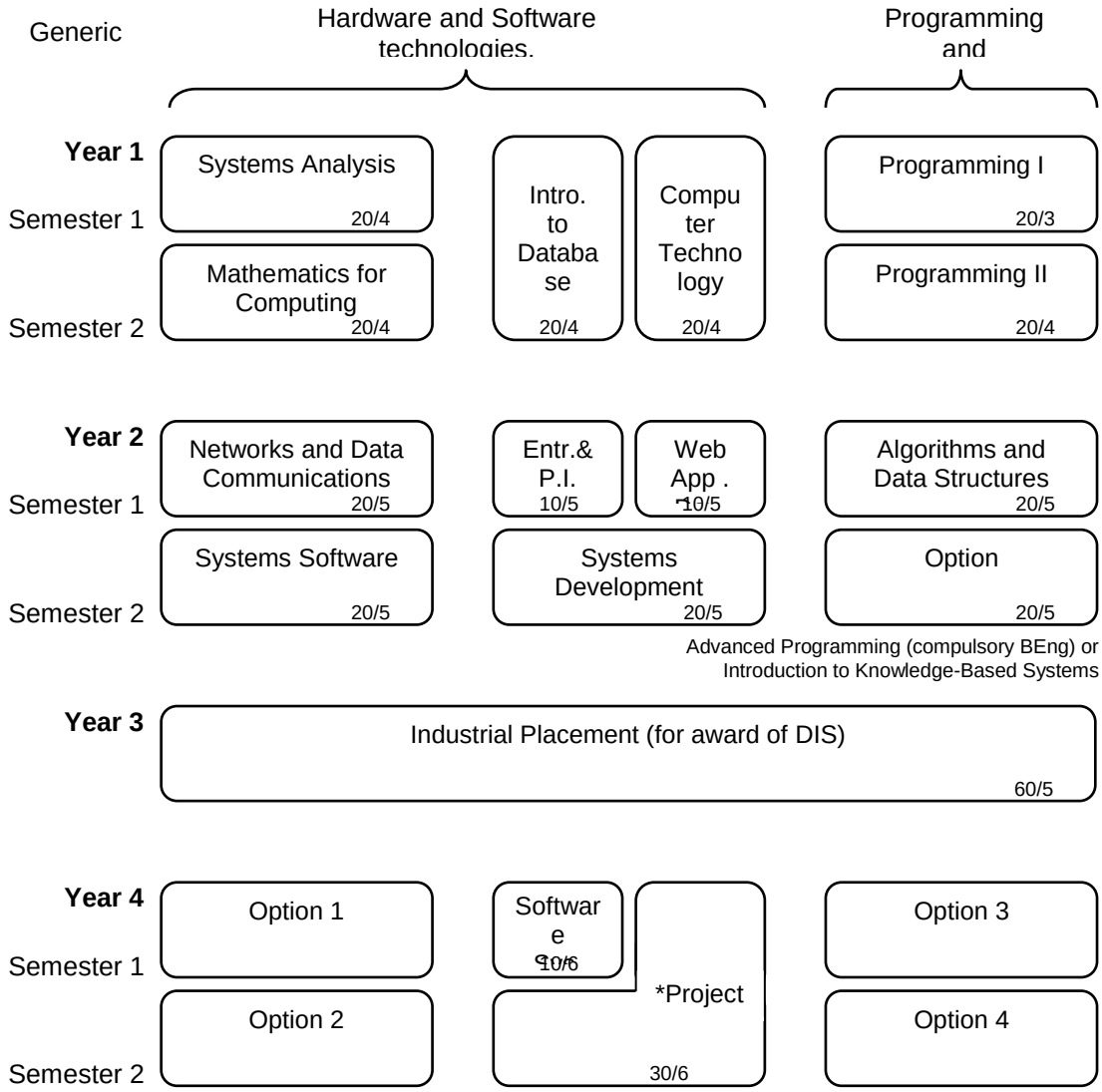
- Provide a systematic study of the theory and principles of programming and software engineering, computer hardware and software technologies, and the role of computing systems in organizations.

- Develop an ability to analyze computing problems and formulate practical solutions to these problems, coupled with the ability to critically evaluate the approach and techniques used.

- Provide opportunities for the development of practical skills in software development in a business/industrial context.

- Develop key skills and enterprise competencies to support the student's progression into a career in the software industry or further academic study.

Programme Structure Diagram



Year 4 Options - All modules 20 points at level 6 (S1: Semester 1, S2: Semester 2)

Artificial Intelligence:
- Intelligent Systems (S1)
- Natural Language Processing (S2)

Enterprise Technologies
- Advanced Database Systems (S1)
- Interactive Web Computing (S1)
- IS Strategic Management (S1)

Healthcare Technologies
- Health Informatics (S1)
- Emerging Healthcare Technologies (S2)

Network Technologies:
- Advanced Computer Networks (S2)
- Concurrent & Distributed Systems (S2)

Software Engineering (compulsory BEng):
- Formal Requirements Specification (S1)
- Software Engineering Management (S2)

*Project
- BSc Hons CS – CS Project (S1&2)
- BEng Hons SE – SE Project (S1&2)

Teaching and Learning Support Charter

This Charter outlines the University's commitments to students and their responsibilities in relation to teaching and learning. A copy is available at:

http://www.ulster.ac.uk/quality/qmau/t&lsupportcharter.pdf

Programme Specification

COURSE TITLE: BSc Hons Computing Science (*with specialism*) DIS/DAS

BSc Hons Computing Science (Artificial Intelligence) DIS/DAS

BSc Hons Computing Science (Enterprise Technologies) DIS/DAS

BSc Hons Computing Science (Healthcare Technologies) DIS/DAS

BSc Hons Computing Science (Network Technologies) DIS/DAS

PLEASE NOTE: This specification provides a concise summary of the main features of the BSc Honours Computing Science (*with specialism*) (DIS/DAS) and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he or she takes full advantage of the learning opportunities provided. More detailed information on the specific learning outcomes, content and the teaching, learning and assessment methods of each module can be found in the module handbooks and online via the course notice board at http://www.compsci.infj.ulst.ac.uk.

1. **AWARD INSTITUTION/BODY**: UNIVERSITY OF ULSTER

2**. TEACHING INSTITUTION**: UNIVERSITY OF ULSTER

3. **LOCATION**: Jordanstown

4. **ACCREDITED BY**: British Computer Society

5. **FINAL AWARD**: BSc Hons in Computing Science (Artificial Intelligence) with Diploma in Industrial Studies/Area Studies OR

BSc Hons in Computing Science (Enterprise Technologies) with Diploma in Industrial Studies/Area Studies OR

BSc Hons in Computing Science (Healthcare Technologies) with Diploma in Industrial Studies/Area Studies OR

BSc Hons in Computing Science (Network Technologies) with Diploma in Industrial Studies/Area Studies

6. **MODE OF ATTENDANCE**: Full-time

7. **SPECIALISMS**: Computing

8. **COURSE/UCAS CODE**: 6177 / GG47 (Artificial Intelligence)

6178 / GG45 (Enterprise Technologies)

6179 / GG4M (Healthcare Technologies)

6181 / G490 (Network Technologies)

9. **DATE WRITTEN/REVISED** September 2009

10. **EDUCATIONAL AIMS OF THE COURSE**

The overall aim of the course is to provide a broadly-based education in computing science which will produce graduates equipped to apply best practice in software engineering to the development of a wide range of information systems in organisations.

In support of this, the course has the following objectives:

- to provide a systematic study of the theory and principles of programming and software engineering, computer hardware and software technologies, and the role of computing systems in organisations.

- to develop an ability to analyse computing problems and formulate practical solutions to these problems, coupled with the ability to critically evaluate the approach and techniques used.

- to provide opportunities for the development of practical skills in software development in a business/industrial context.

- to provide opportunities for the study at an advanced level of a range of computing techniques, technologies and applications.

- to develop key skills and competencies to support the student's progression into a career in the software industry or further academic study.

MAIN LEARNING OUTCOMES

The following reference points were used to inform the development of the programme and its learning outcomes:

- The University's vision and core strategic aims, teaching and learning strategy and policies;

- Current research and scholarship carried out by academic staff;

- The QAA Computing subject benchmark statement (2007) (B);

- The British Computer Society Guidelines on Course Exemption and Accreditation (2007)(P);

- The University Qualifications and Credit framework;

- Computing Curricula 2005 (ACM/IEEE Computer Society)

11.1 BSc Hons Computing Science DIS/DAS

The course provides opportunities for students to achieve and demonstrate the following learning outcomes.

11.1K KNOWLEDGE AND UNDERSTANDING OF SUBJECT

K1 Programming fundamentals, data structures and algorithms, databases, human-computer interaction and software engineering (B,P)

K2 Computer architecture, computer networks, systems software and web-based computing (B,P)

K3 An engineering approach to the development of information systems in organisations (B, P)

K4 Professional issues in information systems engineering (B, P)

K5 Current developments in a range of advanced computing techniques, technologies and applications (B, P)

Teaching and Learning Methods

Lectures will be used to present and illustrate basic theory and fundamental principles. Tutorials will be used to elaborate lecture content, provide problem solving opportunities and examine problem solutions in greater detail. Laboratory classes will enable hands-on experience of the practical application of theoretical concepts and allow elements of collaborative work. Class work will supplemented by directed private study and may include access to online tutorial and study material.

Assessment Methods

A wide variety of assessment methods will be used including class tests, collaborative coursework assignments and online assessments. Assessment of the knowledge base is principally through written examinations and submitted coursework assignments, enhanced in final year by the project dissertation and oral presentations.

11.1I INTELLECTUAL QUALITIES

The ability to:

I1 Abstract and model data and facts pertaining to the requirements of an information system for the purposes of comprehension, analysis, specification and communication (B, P)

I2 Formulate design specifications for constructing information systems and apply problem solving skills in their specification and implementation (B, P)

I3 Analyse and evaluate the extent to which an information system meets the criteria defined for its current use and future development (B, P)

I4 Relate professional, legal, moral and ethical issues to the engineering and use of information systems (B, P)

I5 Justify and communicate the technical and organisational rationale for a particular software solution (B)

I6 Apply computing science fundamentals to the comprehension and evaluation of advanced hardware and software technologies (P)

Teaching and Learning Methods

Intellectual qualities will be developed mainly through application of theory in laboratory practical classes, individual and collaborative coursework assignments, directed private study, professional work experience and final year projects.

Assessment Methods

Class tests, individual and collaborative coursework assignments, individual project reports, individual presentations, oral and written examinations.

11.1P PROFESSIONAL/PRACTICAL SKILLS

The ability to:

P1 Specify, design, construct and test computer-based information systems (B, P)

P2 Deploy best practice engineering processes, techniques and tools for the development and documentation of information systems (B, P)

P3 Work collaboratively with others, recognising the different roles within a team and the different ways of organising teams (B, P)

P4 Communicate effectively technical information to technical, management, user, and academic audiences (B, P)

P5 Operate computing equipment effectively, based on an understanding of its hardware and software elements (B)

P6 Solve computing problems in a business/industrial context.

Teaching and Learning Methods

Skills will be developed through tutorials, laboratory practical classes, individual and collaborative coursework, directed private study, industrial placement, written reports and oral presentations.

Assessment Methods

Skills will be assessed by class-tests, individual and collaborative coursework assignments, individual project written reports and viva-voce examination, software demonstrations, individual presentations, poster presentations, placement reports from students and supervisors.

11.1T TRANSFERABLE SKILLS

The ability to:

T1 Learn in both familiar and unfamiliar situations making effective use of information retrieval skills and learning resources (B)

T2 Communicate effectively using various media and with a variety of audiences (B)

T3 Apply numeracy in both understanding and presenting cases involving a quantitative aspect (B)

T4 Effectively use general information technology facilities (B)

T5 Manage one's own learning and development including time management, organizational skills and awareness of entrepreneurship issues (B, P)

T6 Appreciate the need for continuing professional development in recognition of the need for life long learning (B, P)

Teaching and Learning Methods

Development of transferable skills operates across the programme in lectures and tutorials, laboratory practical classes, directed private study, individual and collaborative coursework and preparation for and experience in industrial placement.

Assessment Methods

Assessment is through class-tests, coursework assignments, collaborative coursework, individual project written reports and viva-voce examination, software demonstrations, individual presentations, poster presentations, placement reports from students and supervisors.

11.1 PROGRAMME LEARNING OUTCOMES MAP - BSc Hons Computing Science DIS/DAS

Please note: The matrix displays only the measurable programme outcomes and where these are developed and assessed within the modules offered in the programme. There may be other outcomes detailed in the module descriptions (eg attitudes and behaviours) which are not assessed.

Modules		**Outcomes**																						
TITLE	CODE	K1	K2	K3	K4	K5	I1	I2	I3	I4	I5	I6	P1	P2	P3	P4	P5	P6	T1	T2	T3	T4	T5	T6
Year 1																								
Programming I	COM158	Y		Y			Y						Y				Y				Y	Y		
Systems Analysis	COM144	Y		Y	Y		Y	Y	Y		Y		Y	Y		Y					Y	Y		
Computer Technologies	COM140		Y		Y				Y			Y				Y	Y			Y	Y	Y		
Introduction to Databases	COM147	Y	Y	Y	Y		Y	Y					Y	Y		Y	Y				Y	Y		
Programming II	COM164	Y		Y			Y	Y					Y	Y			Y				Y	Y		
Mathematics for Computing	COM137	Y		Y			Y	Y					Y	Y							Y			
Year 2																								
Algorithms and Data Structures	COM328	Y		Y			Y	Y	Y		Y	Y	Y	Y			Y				Y	Y		
Networks and Data Communications	COM347		Y					Y		Y			Y		Y		Y		Y	Y	Y	Y		
Entrepreneurship & Professional Issues	COM411			Y	Y				Y	Y					Y				Y				Y	Y
Web Application Development	COM409	Y	Y	Y			Y	Y		Y			Y	Y	Y		Y					Y		
Systems Development	COM333	Y		Y			Y	Y	Y		Y		Y	Y	Y	Y			Y			Y		
Systems Software	COM332		Y						Y			Y	Y		Y		Y				Y	Y		
Year 2 options																								
Advanced Programming	COM374	Y		Y			Y	Y				Y	Y	Y			Y				Y	Y		
Introduction to Knowledge Based Systems	COM340	Y		Y			Y	Y	Y		Y	Y	Y	Y	Y	Y				Y				
Year 3																								
Industrial Placement	COM367						Y		Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y
Final Year																								
Software Systems Engineering	COM606	Y		Y		Y	Y	Y	Y		Y		Y	Y		Y			Y					

Modules		**Outcomes**																					
TITLE	CODE	K1	K2	K3	K4	K5	I1	I2	I3	I4	I5	I6	P1	P2	P3	P4	P5	P6	T1	T2	T3	T4	T5	T6
Computing Science Project/Dissertation	COM562	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y
Final Year Options																								
Advanced Database Systems	COM571	Y	Y	Y		Y	Y	Y	Y		Y	Y	Y	Y		Y			Y		Y			
Formal Requirements Specification	COM583	Y		Y		Y	Y	Y	Y		Y	Y	Y	Y	Y				Y		Y			
IS – Strategic Management	COM579																							
Intelligent Systems	COM542	Y		Y		Y	Y	Y	Y		Y	Y	Y	Y					Y		Y			
Interactive Web Computing	COM554	Y	Y	Y		Y		Y	Y		Y	Y	Y	Y		Y			Y					
Health Informatics	COM510		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y				Y	Y			Y	
Advanced Computer Networks	COM548		Y	Y		Y	Y	Y	Y		Y	Y	Y	Y		Y	Y		Y		Y	Y		
Concurrent and Distributed Systems	COM577	Y	Y	Y		Y	Y	Y	Y		Y	Y	Y	Y			Y		Y					
Natural Language Processing	COM578	Y	Y	Y		Y	Y	Y	Y		Y	Y	Y	Y			Y		Y		Y	Y		
Software Engineering Management	COM582	Y		Y	Y	Y	Y	Y	Y	Y		Y		Y		Y	Y		Y		Y			
Emerging Healthcare Technologies	COM641	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y				Y	Y	Y		Y	
Mobile Computing	COM528	Y			Y	Y	Y	Y		Y		Y	Y	Y	Y					Y			Y	

11.2 Certificate of Higher Education in Computing (Exit Award)

The course provides opportunities for students to achieve and demonstrate the following learning outcomes.

11.2K KNOWLEDGE AND UNDERSTANDING OF SUBJECT

K1 Programming fundamentals, elementary data structures and algorithms, databases and the software life cycle. (B,P)

K2 Computer architecture (B,P)

K3 An engineering approach to the development of information systems in organisations (B, P)

Teaching and Learning Methods

Lectures will be used present and illustrate basic theory and fundamental principles. Tutorials will be used to elaborate lecture content, provide problem solving opportunities and examine problem solutions in greater detail. Laboratory classes will enable hands-on experience of the practical application of theoretical concepts. Class work will supplemented by directed private study and may include access to online tutorial and study material.

Assessment Methods

A wide variety of assessment methods will be used including class tests, collaborative coursework assignments and online assessments. Assessment of the knowledge base is principally through written examinations and submitted coursework assignments.

11.2I INTELLECTUAL QUALITIES

The ability to:

I1 Abstract and model data and facts pertaining to the requirements of an information system for the purposes of comprehension, analysis, specification and communication (B, P)

I2 Formulate design specifications for constructing software and apply problem solving skills in its specification and implementation (B, P)

I3 Analyse and the extent to which an information system meets the criteria defined for its use. (B, P)

I4 Communicate the technical and organisational rationale for a particular software solution (B)

Teaching and Learning Methods

Intellectual qualities will be developed mainly through application of theory in laboratory practical classes, individual and collaborative coursework assignments, directed private study..

Assessment Methods

Class tests, coursework assignments and written examinations.

11.2P PROFESSIONAL/PRACTICAL SKILLS

The ability to:

P1 Analyse computer-based information systems (B, P)

P2 Deploy best practice engineering processes, techniques and tools for the development and documentation of information systems (B, P)

P3 Communicate technical information to technical, management, user, and academic audiences (B, P)

P4 Operate computing equipment effectively, based on an understanding of its hardware and software elements (B)

Teaching and Learning Methods

Skills will be developed through tutorials, laboratory practical classes, coursework, directed private study.

Assessment Methods

Skills will be assessed by class-tests, coursework assignments.

11.2T TRANSFERABLE SKILLS

The ability to:

T1 Apply numeracy in both understanding and presenting cases involving a quantitative aspect (B)

T2 Effectively use general information technology facilities (B)

Teaching and Learning Methods

Development of transferable skills operates across the programme in lectures and tutorials, laboratory practical classes, directed private study and coursework.

Assessment Methods

Assessment is through class-tests, coursework assignments, coursework.

11.2 PROGRAMME LEARNING OUTCOMES MAP - Certificate of Higher Education in Computing (Exit Award)

Please note: The matrix displays only the measurable programme outcomes and where these are developed and assessed within the modules offered in the programme. There may be other outcomes detailed in the module descriptions (eg attitudes and behaviours) which are not assessed.

Modules		**Outcomes**																					
TITLE	CODE	K1	K2	K3			I1	I2	I3	I4			P1	P2	P3	P4			T1	T2				
Year 1																								
Programming I	COM158	Y		Y			Y						Y			Y			Y	Y				
Systems Analysis	COM144	Y		Y			Y	Y	Y	Y			Y	Y	Y				Y	Y				
Computer Technologies	COM140		Y						Y						Y	Y			Y	Y				
Introduction to Databases	COM147	Y	Y	Y			Y	Y					Y	Y	Y	Y			Y	Y				
Programming II	COM164	Y		Y			Y	Y					Y	Y		Y			Y	Y				
Mathematics for Computing	COM137	Y		Y			Y	Y					Y	Y					Y					

11.3 Associate Bachelor's Degree in Computing Science DIS/DAS (Exit Award)

The course provides opportunities for students to achieve and demonstrate the following learning outcomes.

11.3K KNOWLEDGE AND UNDERSTANDING OF SUBJECT

K1 Programming fundamentals, data structures and algorithms, databases, human-computer interaction and software engineering (B,P)

K2 Computer architecture, computer networks, systems software and web-based computing (B,P)

K3 An engineering approach to the development of information systems in organisations (B, P)

K4 Professional issues in information systems engineering (B, P)

Teaching and Learning Methods

Lectures will be used present and illustrate basic theory and fundamental principles. Tutorials will be used to elaborate lecture content, provide problem solving opportunities and examine problem solutions in greater detail. Laboratory classes will enable hands-on experience of the practical application of theoretical concepts and allow elements of collaborative work. Class work will supplemented by directed private study and may include access to online tutorial and study material.

Assessment Methods

A wide variety of assessment methods will be used including class tests, collaborative coursework assignments and online assessments. Assessment of the knowledge base is principally through written examinations and submitted coursework assignments.

11.3I INTELLECTUAL QUALITIES

The ability to:

I1 Abstract and model data and facts pertaining to the requirements of an information system for the purposes of comprehension, analysis, specification and communication (B, P)

I2 Formulate design specifications for constructing information systems and apply problem solving skills in their specification and implementation (B, P)

I3 Analyse and evaluate the extent to which an information system meets the criteria defined for its current use and future development (B, P)

I4 Relate professional, legal, moral and ethical issues to the engineering and use of information systems (B, P)

I5 Justify and communicate the technical and organisational rationale for a particular software solution (B)

Teaching and Learning Methods

Intellectual qualities will be developed mainly through application of theory in laboratory practical classes, individual and collaborative coursework assignments, directed private study, professional work experience.

Assessment Methods

Class tests, individual and collaborative coursework assignments and written examinations.

11.3P PROFESSIONAL/PRACTICAL SKILLS

The ability to:

P1 Specify, design, construct and test computer-based information systems (B, P)

P2 Deploy best practice engineering processes, techniques and tools for the development and documentation of information systems (B, P)

P3 Work collaboratively with others, recognising the different roles within a team and the different ways of organising teams (B, P)

P4 Communicate effectively technical information to technical, management, user, and academic audiences (B, P)

P5 Operate computing equipment effectively, based on an understanding of its hardware and software elements (B)

P6 Solve software problems in a business/industrial context.

Teaching and Learning Methods

Skills will be developed through tutorials, laboratory practical classes, individual and collaborative coursework, directed private study, industrial placement (DIS version only), written reports.

Assessment Methods

Skills will be assessed by class-tests, individual and collaborative coursework assignments, placement reports from students and supervisors (DIS version only),.

11.3T TRANSFERABLE SKILLS

The ability to:

T1 Learn in both familiar and unfamiliar situations making effective use of information retrieval skills and learning resources (B)

T2 Communicate effectively using various media and with a variety of audiences (B)

T3 Apply numeracy in both understanding and presenting cases involving a quantitative aspect (B)

T4 Effectively use general information technology facilities (B)

T5 Manage one's own learning and development including time management, organisational skills and awareness of entrepreneurship issues (B, P)

T6 Appreciate the need for continuing professional development in recognition of the need for life long learning (B, P)

Teaching and Learning Methods

Development of transferable skills operates across the programme in lectures and tutorials, laboratory practical classes, directed private study, individual and collaborative coursework and preparation for and experience in industrial placement (DIS version only).

Assessment Methods

Assessment is through class-tests, coursework assignments, collaborative coursework, placement reports from students and supervisors (DIS version only).

11.3 PROGRAMME LEARNING OUTCOMES MAP - Associate Bachelor's Degree in Computing Science DIS/DAS (Exit Award)

Please note: The matrix displays only the measurable programme outcomes and where these are developed and assessed within the modules offered in the programme. There may be other outcomes detailed in the module descriptions (eg attitudes and behaviours) which are not assessed.

Modules		**Outcomes**																					
TITLE	CODE	K1	K2	K3	K4		I1	I2	I3	I4	I5		P1	P2	P3	P4	P5	P6	T1	T2	T3	T4	T5	T6
Year 1																								
Programming I	COM158	Y		Y			Y						Y				Y				Y	Y		
Systems Analysis	COM144	Y		Y	Y		Y	Y	Y		Y		Y	Y		Y					Y	Y		
Computer Technologies	COM140		Y		Y				Y							Y	Y			Y	Y	Y		
Introduction to Databases	COM147	Y	Y	Y	Y		Y	Y					Y	Y		Y	Y				Y	Y		
Programming II	COM164	Y		Y			Y	Y					Y	Y			Y				Y	Y		
Mathematics for Computing	COM137	Y		Y			Y	Y					Y	Y							Y			
Year 2																								
Algorithms and Data Structures	COM328	Y		Y			Y	Y	Y		Y		Y	Y			Y				Y	Y		
Networks and Data Communications	COM347		Y					Y		Y			Y		Y		Y		Y	Y	Y	Y		
Entrepreneurship & Professional Issues	COM411			Y	Y				Y	Y					Y				Y				Y	Y
Web Application Development	COM409	Y	Y	Y			Y	Y		Y			Y	Y	Y		Y					Y		
Systems Development	COM333	Y		Y			Y	Y	Y		Y		Y	Y	Y	Y			Y			Y		
Systems Software	COM332		Y						Y				Y		Y		Y				Y	Y		
Year 2 options																								
Advanced Programming	COM374	Y		Y			Y	Y					Y	Y			Y				Y	Y		
Introduction to Knowledge Based Systems	COM340	Y		Y			Y	Y	Y		Y		Y	Y	Y	Y				Y				
With DIS/DAS																								
Year 3																								
Industrial Placement	COM367						Y		Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y

12. STRUCTURE AND REQUIREMENTS FOR THE AWARD

The course is of four years duration. Years 1, 2 and 4 are spent at university and year 3 is a period of industrial placement.

The course structure is centred on three broad themes: programming and software engineering, hardware and software technologies, and computing in organisations. Years 1 and 2 consist of a set of modules addressing these themes, enabling students to achieve the basic competencies in software development and equipping them for a period of industrial placement. Year 1 consists of 20 points at Level 3 plus 100 points at Level 4. Year 2 consists of 120 points at Level 5.

All students normally spend year 3 on placement, working in some aspect of the software industry for a minimum period of 30 weeks. On satisfactory completion of the placement period the student is eligible for the award of Diploma in Industrial Studies. A student who satisfactorily completes year 3 in study abroad is eligble for the award of Diploma in Area Studies.

Year 4 consists of two compulsory modules and four optional modules, all at Level 6. The compulsory modules (Software Systems Engineering and Computing Science Project) reflect the core theme of the course at an advanced level. A range of optional modules is offered. Students may elect to do a broad range of topics or specialise in a designated theme, such as computer networks, healthcare technologies, enterprise technologies or artificial intelligence.

To be eligible to graduate with a specialism requires:

- Successful completion of **two** optional modules from the appropriate specialism strand
- Successful completion of a **final year project** in the specialism strand

Satisfactory completion of each pre-final year of the course is normally a prerequisite for progression to the subsequent year. Satisfactory completion of year 4 leads to the award of the degree with Honours. Pass requirements and honours classifications are detailed in section 16 below.

The language of instruction is English.

Module Title	Credit Level	Credit Points	Module Status	Sem.	Award
Year 1					
Programming I	3	20	compulsory	1	
Systems Analysis	4	20	compulsory	1	
Introduction to Databases	4	20	compulsory	½	
Computer Technologies	4	20	compulsory	½	
Mathematics for Computing	4	20	compulsory	2	
Programming II	4	20	compulsory	2	

Exit Award: Certificate of Higher Education (CertHE) in Computing

Year 2					
Algorithms & Data Structures	5	20	compulsory	1	
Networks & Data Communications	5	20	compulsory	1	
Entrepreneurship & Professional Issues	5	10	compulsory	1	
Web Application Development	5	10	compulsory	1	
Systems Development	5	20	compulsory	2	
Systems Software	5	20	compulsory	2	
Advanced Programming	5	20	optional	2	
Introduction to Knowledge-based Systems	5	20	optional	2	

Exit Award: Associate Bachelor's Degree (AB) in Computing Science

Year 3					
Placement	5	60	compulsory	1/2/3	

Module Title	Credit Level	Credit Points	Module Status	Sem.	Award
Exit Award: Associate Bachelor's Degree (AB) in Computing Science with DIS/DAS					
Year 4					
Computing Science Project/ Dissertation	6	30	compulsory	1/2	1/4
Software Systems Engineering	6	10	compulsory	1	1/12
Advanced Database Systems	6	20	optional	1	1/6
Formal Requirements Specification	6	20	optional	1	1/6
Intelligent Systems	6	20	optional	1	1/6
Interactive Web Computing	6	20	optional	1	1/6
IS Strategic Management	6	20	optional	1	1/6
Health Informatics	6	20	optional	1	1/6
Advanced Computer Networks	6	20	optional	2	1/6
Concurrent & Distributed Systems	6	20	optional	2	1/6
Natural Language Processing	6	20	optional	2	1/6
Software Engineering Management	6	20	optional	2	1/6
Emerging Healthcare Technologies	6	20	optional	2	1/6
Mobile Computing	6	20	optional	1	1/6

Module Title	Credit Level	Credit Points	Module Status	Sem.	Award

Award:

BSc Hons Computing Science (*with specialism*) DIS/DAS

BSc Hons Computing Science (Artificial Intelligence) DIS/DAS

BSc Hons Computing Science (Enterprise Technologies) DIS/DAS

BSc Hons Computing Science (Healthcare Technologies) DIS/DAS

BSc Hons Computing Science (Network Technologies) DIS/DAS

13. SUPPORT FOR STUDENTS AND THEIR LEARNING

Students and their learning are supported in a number of ways:

- An *induction programme* both before and during semester 1 of year 1 (supported by additional small-group tutorials to ensure in-depth treatment of topics such as plagiarism, preparation for examinations, personal development planning, etc.)

  For final year, week 1 induction talks to help readjustment to academic study following placement and then subsequently through the provision of online tutorial material and a repository of programming tools in support of project work.

- The same c*ourse director* manages each of the three related courses (BSc Hons Computing Science, BEng Hons Software Engineering and BSc Hons Information and Communication Technologies) and thus has oversight of interactions between the courses (such as module sharing or student transfers) as well as their internal operation.

- *Adviser of Studies* provides a single first point of reference for both new and continuing students. The advisor of studies is an experienced member of staff with the responsibility of assisting students in their personal and career development.

- *Personal Development Planning* begins with introductory tutorials in year one, leading to year two placement preparation sessions (CV writing, interview technique, etc.) which are dedicated to preparing students for placement and providing support in finding placement opportunities. The Faculty online placement support system (OPUS) is directly integrated with the University online Personal Development System (PDS).

- The *Career Development Centre*, in addition to its standard career support, provides specific career development talks to computing students and arranges visits by a variety of firms in the computing industry. Close cooperation with the courses ensures that all careers events are well publicised to students by email and/or the course online notice board.

- The University's *Information Services Department* supports centralised computing facilities such as student e-mail accounts and access to the Internet. In addition computing students benefit from a wide range of specialised computing science resources provided in dedicated computer laboratories managed by the Faculty's own Computing Officers.

- The *course web site* (http://www.compsci.infj.ulst.ac.uk) is continuously maintained and so provides a focal point for access to any course related information such as recent announcements, timetables, links to module or other relevant University web sites, etc.

- Course handbook (on CD) and module booklets
- Extensive library and other learning resources
- Intranet containing learning support material
- Academic staff visit students during placement
- Direct contact with academic staff facilitated via email

14. CRITERIA FOR ADMISSION

Applicants must satisfy the University's general entry requirements as set out in the prospectus or demonstrate their ability to undertake the course through the accreditation of prior experiential learning (APEL). The initial offer standard may vary from year to year. See prospectus entry.

Specific requirements for admission are detailed below:

Year 1

- Typical GCE/AVCE 'A' Level requirements: A minimum of 280 UCAS Tariff points to include grades BB. GCSE passes at Grade C in English and at Grade B or above in Mathematics or equivalent.
- Typical Irish Leaving Certificate (Highers) requirements: A minimum of 280 UCAS Tariff points to include Higher grades B1B2B2C2C3 (Typical Profile). Minimum of Mathematics Higher D3 or Ordinary B3 and English Higher D3 or Ordinary C3 also required.
- Successful completion of Integrated Foundation Year for BSc Honours Computing Science.
- Computing OR Electronics and Computing. Successful completion with DMM profile. Any other subjects contact the Fasculty Office.
- HND in Computing or Software Engineering. Successful completion of HND with 3D, 2M, 1P OR 2D, 4M for Year 2 entry. Successful completion of any other subject for Year 1 entry.
- APEL: Normally GCSE passes of at least grade C in English and grade B in Mathematics are required.

Year 2

Direct entry to year 2 for suitably qualified candidates.

15. EVALUATING AND IMPROVING THE QUALITY AND STANDARD OF TEACHING AND LEARNING

Quality and standards are evaluated and improved by the following means:

Mechanisms for the review and evaluation of teaching, learning, assessment, the curriculum and outcome standards:

- University processes for periodic re-approval of courses and annual subject monitoring
- Module reviews (include student input)
- Review of external examiner views expressed in assessment moderation, during Examination Board visits and in annual reports
- Annual course review prepared by the course committee
- Peer teaching observations and feedback
- Annual staff reviews
- Review of employer views expressed through annual feedback surveys of employers of placement students and at meetings of the Faculty Industrial Liaison Panel

Committees with responsibility for monitoring and evaluating quality:

- Staff Student Consultative Committee
- Course committee
- Board of Examiners
- Faculty Academic Affairs Committee (includes student members)
- University Academic Affairs Committee (includes student members)

Mechanisms for gaining student feedback on the quality of their learning experience:

- Student-Staff Consultative Committee
- Student representatives on Faculty committees
- Student questionnaires on each lecturer
- Placement reports

Staff development includes:

- Updating in the subject through research and scholarship
- Membership of the Higher Education Academy

- Consultancy
- Technology transfer
- University Staff Development programme
- Staff activity in the School of Computing hosted Higher Education Academy Subject Centre for Information and Computer Sciences.

In addition, there are University and Faculty strategies for teaching and learning**.**

16. REGULATION OF STANDARDS

Assessment rules

The pass mark for each module in years 1, 2 and 4 is 40%. Where a module is assessed by a combination of coursework and examination a minimum mark of 35% shall be achieved in each element.

For the Certificate of Higher Education in Computing, all year 1 modules contribute to the award according to their points weighting and the following percentages are used for determining candidates' overall grading:

60% Pass with Commendation

40% Pass

For the Associate Bachelor's Degree in Computing, all year 2 modules contribute to the award according to their points weighting and the following percentages are used for determining candidates' overall grading:

60% Pass with Commendation

40% Pass

In year 3 Industrial Placement, the following rules apply:

At least 70%	award DIS with commendation
At least 50% and less that 70%	award DIS
At least 40%	pass year 3 and progress to final year.

The following percentages are used for determining candidates' overall gradings of Honours degree courses:

Class I	At least 70%
Class II (division i) (IIi)	At least 60% and less than 70%

Class II (division ii) (IIii)	At least 50% and less than 60%
Class III	At least 40% and less than 50%

Only year 4 level 6 modules contribute to the honours classification. All modules contribute equally according to their points weighting (20 point modules contribute one sixth, 10 point modules one twelfth and 30 point modules one quarter.)

External Examiners

There is one external examiner for the course. External examiners are academic subject or professional experts appointed from outside the University. Their key functions are to contribute to the assurance of the standards of the award and the fair treatment of students. They are involved in the moderation and approval of assessments and the moderation of the marking undertaken by internal examiners.

17. INDICATORS OF QUALITY RELATING TO TEACHING AND LEARNING

- The outcome of the QAA Institutional Audit (2005) to which the Computing Discipline Audit Trail was a major contributor: judgement of broad confidence with no requirements.
- The Faculty was given a satisfactory rating by the QAA subject review process for its provision of Computing Science Teaching (1994) and attained 22 in the QAA Subject Review of Mathematics, Statistics and Operational Research (2000).
- Some teaching staff are members of the Higher Education Academy
- A number of the current Faculty staff have received the University's Distinguished Teaching Award.
- Research Assessment Exercise rating of 4 (2001).
- External funding for learning and teaching initiatives.
- New staff and some existing staff have attained the Postgraduate Certificate in University Teaching.
- Selected courses have been accreditated by The British Computer Society.

Attendance Monitoring

The regulations for all courses at Ulster include a section on attendance requirements which indicates:

- Students are expected to attend all classes associated with the course and be punctual and regular in attendance.

- A student who has not been in attendance for more than three days through illness or other cause must notify immediately the Course/Subject Director. The student shall state the reasons for the absence and whether it is likely to be prolonged. Where the absence is for a period of more than five working days, and is caused by illness which may affect their studies, the student shall provide appropriate medical certification in accordance with the General Regulations for Students.

- Students who are absent without good cause for a substantial proportion of classes may be required to discontinue studies, in accordance with the General Regulations for Students.

Attendance will therefore be monitored on all modules across all years of study (undergraduate and postgraduate). Typically this will take the form of a sign-in sheet at each class (although other methods such as login records etc may also be used, particularly on online modules). This sheet will then be returned to the School Office where each student's attendance will be recorded electronically. Staff will then be able to periodically review a summary of each student's attendance and take any necessary action, such as interviewing a student to discuss their attendance.

Attendance at meetings with advisors of study or other staff will also be recorded.

It is acknowledged that there may be times that due to personal circumstances, attendance is not possible. However, it is important that in such circumstances you advise your Course Director as soon as practical, preferably in advance using an NA1 form.

Should you be contacted in relation to your attendance, it is important that you respond immediately and fully engage with the procedures. The School views the monitoring of attendance as a mechanism to help you maximise the benefit from your studies – it is not a "punishment".

Module Overview

CDDP Modules

A small set of additional modules, based outside of the Progamme, have been introduced to assist students making applications to companies as part of their sandwich placement as it is often their first experience of the world of work. By visiting students currently on placement this will give them a better insight and therefore allow them to prepare themselves better for the complete placement process. As well as acquiring knowledge in the taught modules students need to see first-hand how this relates to the industrial setting. It will make students more aware of how organisations function on a day-to-day basis and not just through the formal interview process and guided tours typically offered as part of the interview.

As fledgling I.T. professionals students should reflect upon their own experiences, learning, performance and/or achievements and start to plan for their personal, educational and career development from the start of their degree.

Year 1

COM137 (11539) - Mathematics for Computing

An introduction to topics in discrete mathematics commonly encountered in computer science. A variety of mathematical structures are introduced and their notation, properties and uses are discussed. The analytic skills and conceptual thinking required for sound performance in areas such as computer programming, software specification, and systems design are developed in this module. These skills are developed through examples and practical applications.

COM140 (11542) - Computer Technology

This module introduces students to the basic hardware components from which a computer system is constructed and the organisation of these components. The components of the computer system that are involved in the execution of a software program will be discussed. Students will also gain an understanding of how computers communicate, both in general, and when used in local and wide area networks.

COM147 (11553) - Introduction to databases

This module is devoted to the study of the design, construction and use of computerised databases. Both theory and practice are covered. Practical work with a commercial database management system is included.

COM158 (11565) - Programming I

This module introduces students to the fundamental comcepts of software development. it provides a solid foundation for more advanced study of this topic.

COM164 (11567) - Programming II

This module introduces students to object-oriented programming and provides the opportunity to develop event driven software. As a direct follow-on to the module Programming I, it draws on previously acquired skills and programming constructs in the solution of more complex problems using an object-oriented approach.

COM172 (11576) - Systems Analysis

This module provides the student with a sound knowledge of the tools and techniques of systems analysis which are essential to understanding the environment within which computer systems are to be implemented. Concepts of project management are introduced and personal communication skills nurtured.

Year Two

Mandatory

COM319 (11654) - Networks and Data Communications
This module provides a more advanced study of computer communications and networks with an understanding of security which will be developed at level 3(6) of the programme.

COM328 (11658) – Algorithms and Data Structures
The module builds upon the expertise acquired in Year I programming. Students are introduced to Object-oriented programming. Students learn how to use Sequential and Binary search of arrays and linked structures. Students learn how to specify and implement Stacks, Queues and Lists, using both arrays and linked structures. Students learn how to analyse the performance of searches, sorts and data structure operations and the performance implications of differing implementations.

COM332 (11662) – System Software
The principal aim of this module is to provide an understanding of the underlying systems which support the applications software. The theoretical concepts covered are illustrated by considering their practical application in modern operating systems.

COM333 (11663) – Systems Development
Delivering effective information systems requires a structured and systematic approach to software development. This module provides an introduction to software engineering, emphasizing the role of design in delivering usable and maintainable systems. The practical nature of the subject material is supported through group work on a mini-software engineering problem, and reinforces technical skills taught elsewhere on the course.

COM409 (11717) – Web Application Development
This module will introduce students to the principles and techniques necessary for developing software systems to be deployed over the World Wide Web. Students will also be introduced to important design considerations for web applications.

COM411 (11720) – Professional Issues and Entrepreneurship
The module is designed to make students aware of the nature of the professional working environment - the procedures, practices and relationships which their role will require, professional issues which may arise and to provide experience of working with others and in managing their time. Business start-up issues are also addressed, as a potential career pathway may involve self-employment and/or enterprise development utilising skills acquired through the related course.

Optional

COM340 (11666) – Introduction to Knowledge Based Systems

This module provides an introduction to knowledge-based systems and their applications in business, industry and medicine. Topics covered include the principles of knowledge representation and reasoning, Knowledge-based system architectures, explanation of reasoning, management of uncertainty, roles of meta-knowledge, generic problem-solving methods and knowledge elicitation. Appropriate emphasis is placed on programming and implementation issues.

COM374 (11699) – Advanced Programming
In previous modules students have been introduced to algorithmic and object-oriented programming. This module develops these experiences by extending and consolidating topics in object-oriented programming, introducing multi-threading, advanced data types and presenting the essential features of windows programming.

Year Three

Mandatory

COM367 (11689) – Industrial Placement – Computing
Students are placed in employment through the standard procedures of application and interview. Arrangements leading up to an interview and a contract of employment are monitored by the Placement Tutor. The Placement Tutor is a member of the Computing Placement Coordination Team chaired by the Director of Work Based Learning for the Faculty. This group seeks to ensure close collaboration in the work of individual course placement tutors.

Year Four

Mandatory

COM562 (11815) - Project
Students are required to undertake a software engineering project during the final year of the course. The project module allows selected problem area and software solution to be investigated in depth. Within the project, the student is expected to integrate and apply material from other modules in the course.

COM606 (11846) – Software Systems Engineering
Developing computer software is a challenging and creative experience, motivated by the desire to solve problems. The development of large systems is particularly complex and many methods and processes have evolved to assist with this task. This module on software systems engineering provides a detailed study of these approaches.

Optional

COM510 (18035) – Health Informatics
This module provides an understanding of the technology used in various healthcare applications. This module will provide students with a firm understanding of health informatics.

COM527 (11797) – Intelligent Systems
This module provides a general introduction to Artificial Intelligence. It also provides and overview of main AI techniques and intelligent system applications. This module

is offered for final year students who wish to (a) acquire knowledge of Artificial Intelligence that is useful itself for computing researchers and practitioners; (b) develop a better understanding of AI techniques and their practical applications.

COM528 (18370) – Mobile Computing
A detailed study of mobile application development related to the wider technology base, good design principles, societal perspectives and emerging business models.

COM548 (11808) – Advanced Computer Networks
Although computers can carry out their intended function in a standalone mode, in many instances problems may only be solved by exchange of information with other computers in a distributed computing environment. As more applications move to a data intensive GUI format, bandwidth is readily consumed and faster communications are demanded. This module introduces high performance networking with examples from practical case studies and discusses emerging technologies.

COM554 (11811) – Interactive Web Computing
Interactive web computing underpins modern internet-based applications. This module aims to equip students with a theoretical understanding and the practical skills necessary to develop interactive browser-based software. Its emphasis is on web standards, Web 2.0 and rich internet applications, reflecting the increasing prevalence of browser-based applications. Topics include web browser architecture, event handling, JQuery, XML, Ajax, and usability guidelines and testing.

COM571 (11822) – Advanced Database Systems
This module gives students an opportunity to deepen their theoretical understanding of relational databases and strengthen their practical experience. Object-relational databases which overcome some of the limitations of relational databases by extending them with object capability and object databases which constitute an entirely different paradigm for databases are introduced.

COM577 (11827) – Concurrent and Distributed Systems
This module presents an innovative approach to concurrent and distributed systems which is ideally suited to the needs of today's undergraduate students who wish to equip themselves with expertise in this increasingly important area of computer science. It first focuses on the key concepts and basic design principles of concurrent and distributed systems and then lays the foundations for more extensive software development.

COM578 (11828) - Natural Language Processing
Natural language processing (NLP) is an application area of growing importance, particularly when combined with speech technology. This module is offered for final year students who wish to acquire a detailed knowledge of spoken language technology and its applications.

COM570 (11829) - Information Systems – Strategic Management
This module is based on the fundamental premise that information, information systems and information technology are extremely important and increasingly complex components of business and professional organisations. Decisions related to

information technology and the related information systems can be a major factor influencing an organisation's survival.

COM582 (11830) – Software Engineering Management
The careful planning and control of project activities is essential to the delivery of successful software systems. The unique nature of software engineering projects requires a blend of generic project management skills and software specific project management/quality assurance capabilities. This module presents techniques and methods for the management and quality assurance of software engineering projects and examines key issues in their practical application.

COM583 (11831) - Formal Requirement Specification
This module provides an indepth treatment of requirements analysis and specification phases, the role such phases play in practical software development models and techniques for requirements definition and specification. A range of software development models, requirements analysis and specification techniques are considered and practical work requires students to apply these techniques in a range of problem domains.

COM641 (11875) – Emerging Healthcare Technology
This module provides an understanding of the technology used in various healthcare applications. Existing and emerging aspects of this technology are investigated and the development of tools to assist healthcare delivery are assessed

Year 4 options may vary from time to time.

Timetable & Academic Calendar

The course timetable will be distributed at induction and can also be viewed on the course noticeboard. These timetables are provisional and may be modified by module co-coordinators as required.

Dates of Attendance / Examinations / Vacations : 2009/2010

Semester 1 (Autumn)	Monday 21 September 2009	Teaching begins
	Friday 11 December 2009	Teaching ends
	Monday 14 December 2009	Christmas Vacation begins
	Friday 25 December 2009 to Friday 1 January 2010	**University Closed**
	Friday 1 January 2010	Christmas Vacation ends
	Tuesday 5 January to Saturday 16 January 2010	Examination Period
	Friday 22 January 2010	Autumn Semester ends
Semester 2 (Spring)	Monday 25 January 2010	Teaching begins
	Wednesday 17 March 2010	**University Closed** (St Patrick's Day)
	Monday 29 March 2010	Easter Vacation begins
	Monday 5 April to Friday 9 2010	**University Closed**
	Friday 9 April	Easter Vacation ends
	Monday 3 May 2010	**University Closed** (May Day)
	Tuesday 4 May to Friday 7 May 2010	Revision week (no teaching)
	Monday 10 May to Saturday 22 May 2010 (with possible extension to 25 May if required for first sit examinations)	Examination period
	Friday 28 May 2010	Spring semester ends
Resit Period	Wednesday 11 August to Thursday	Supp Examinations

19 August 2010

Programme Management

Course Committee Membership

Dr Paul Hanna	Acting Head of School, Computing & Mathematics
Dr Nicola Ayre	Course Director
Professor Terry Anderson	Professor
Dr Yaxin Bi	Lecturer
Mr Bill Blackburn	Lecturer
Dr Edwin Curran	Lecturer (Placement Co-ordinator)
Dr Dewar Finlay	Lecturer
Dr David Glass	Lecturer
Prof Elizabeth Hull	Professor
Dr Gaye Lightbody	Lecturer
Dr Pat Lundy	Senior Lecturer
Dr Ian McChesney	Senior Lecturer
Dr Paul McCullagh	Senior Lecturer
Dr Don McFall	Lecturer
Dr George Moore	Lecturer (Project Co-ordinator)
Prof Chris Nugent	Professor
Dr Piyush Ojha	Lecturer
Mr Seamus O'Kane	Lecturer
Mr Pat Sweeney	Lecturer
Mr Ian Young	Lecturer

Programme Management

Overall responsibility for the management of the programme of study lies with the *Course Committee* and the *Course Director* has responsibility for the day-to-day running of the course.

The *Course Committee* is a committee formed by those members of academic staff who have teaching responsibilities on the Course as well as the nominated studies advisors. This committee oversees all changes to the Course and has overall responsibility for its design and effective delivery. The Course Director is the Chairman of the Course Committee.

The *Staff-Student Consultative Committee* assists in informing the Course Committee. Class representatives are elected for each year of the course and these representatives are expected to bring forward any issues raised by the student group they represent.

The Course Committee reports, through School Board, to the Faculty's *Teaching and Learning Committee*, which in turn reports to *Faculty Board*. This is the normal route for all of the Faculty's Course Committee meeting minutes.

An *External Examiner* will be appointed by the University Council on the recommendation of Senate, to oversee and monitor standards etc. on the Course, after consideration of nominations from the Faculty Teaching and Learning Committee.

Student progression is the responsibility of the *Board of Examiners*, whose membership includes the Course Committee and the External Examiner.

A member of the course committee, known as the *Project Co-ordinator*, takes responsibility for organising the final year projects on the course. The role of the Project Co-ordinator involves collating project topics from academic staff and allocating students to projects and project supervisors. The Project Co-ordinator also organises all aspects of project assessment and collates the marks from various sources into an overall project mark.

A member of the course committee acts as a *Placement Tutor* who, liasing with the Faculty Placement Co-ordinator, manages all aspects of the placement process from placement preparation through to assessment and collating of placement marks.

Student Support and Guidance

Students and their learning are supported in a number of ways:

- An extended *Induction Programme* that introduces all aspects of the course, including course management, PC laboratory facilities and usage rules, basic study skills, introduction to student support services, library services and the examinations process.

- A Year 1 *small group tutorial system* complements the induction programme, offering support and guidance on issues such as the transition to University life, study skills, requirements for submitting coursework, understanding plagiarism, plus general student support. Module specific small group tutorials are also operated.

- Support for *Personal Development Planning (PDP)* to help students get the most from their time at University. Through a structured approach, it helps students organize and reflect upon the knowledge and skills they are developing.

- Provision of a *Faculty Student Handbook* that contains essential information for students studying within the Faculty of Engineering. This handbook provides details of all of the key issues in relation to the faculty including academic structures, student support, study requirements, career and further study options etc.

- Provision of a *programme specific Student Handbook* that contains the essential information for students enrolled on this particular programme. This handbook provides details of all of the key issues in relation to the programme including learning outcomes, assessment strategy, rules and regulations etc.

- Each module is supported by the provision of a *Module Handbook* upon commencement of the module. The handbook provides details of all of the key issue relevant to the module such as learning outcomes, assessment schedule, reading material etc.

- Each student is allocated a *Studies Advisor* who has the responsibility of assisting students in their personal and career development. Studies Advisors are charged with assisting their students in adapting to the requirements of a University environment and are required to meet with their students on a regular basis so that any problems can be identified at an early stage and corrective action taken. Where problems are of a more serious nature or require more specialist advice, students may be directed to other senior teaching staff, the Course Director, University Counselling Service or Medical Services.

- The University's centralised *Department of Student Support* is available to help students achieve the maximum benefit from their University life. Students encounter personal challenges in learning and in living within the university environment. The purpose of the Department of Student Support is to assist students, not only in relation to academic achievement, but also in their social and personal development. There are a number of areas that are of particular use to students and these include Accommodation Services, Health Services, Nursery

Care, Students Union and Student Development (which includes Counselling & Guidance).

- The University's *Careers Service* provides a comprehensive careers information, guidance and job search advisory service for students during their course and beyond graduation. In the final year of the course, weekly sessions are run by the Careers Services for students on this course, advising students on job searching , employment opportunities, CV preparation, and interview skills.

Regulations

In the interests of clarity Programme Regulation components pertaining to the Integrated Foundation Year have been colour coded.

UNIVERSITY OF ULSTER

1	**COURSE TITLE**	**COURSE CODE**
	BSc Honours Computing Science (DIS/DAS) including Integrated Foundation Year	**2143**
	BSc Honours Computing Science (DIS/DAS)	**2132**
	BSc Honours Computing Science (Artificial Intelligence) (DIS/DAS)	**6177**
	BSc Honours Computing Science (Enterprise Technologies) (DIS/DAS)	**6178**
	BSc Honours Computing Science (Healthcare Technologies) (DIS/DAS)	**6179**
	BSc Honours Computing Science (Network Technologies) (DIS/DAS)	**6181**
	BEng Honours Software Engineering (DIS/DAS)	**2076**

2 MODE OF ATTENDANCE

Full-Time

3 DURATION

FULL-TIME SANDWICH: Normally 5 years (8 semesters of study including Foundation year and Placement year)

FULL-TIME INTERCALARY: Normally 5 years (10 semesters of study including Foundation year and a year of Study Abroad)

BSc Honours Computing Science (DIS/DAS)
BSc Honours Computing Science (Artificial Intelligence) (DIS/DAS)

BSc Honours Computing Science (Enterprise Technologies) (DIS/DAS)
BSc Honours Computing Science (Healthcare Technologies) (DIS/DAS)
BSc Honours Computing Science (Network Technologies) (DIS/DAS)
BEng Honours Software Engineering (DIS/DAS)

FULL-TIME SANDWICH: Normally 4 years (6 semesters of study and Placement year)

FULL-TIME INTERCALARY: Normally 4 years (8 semesters of study including year of Study Abroad)

4 LOCATION

Jordanstown

5 FACULTY

Faculty of Computng and Engineering

6 ADMISSION REQUIREMENTS

6.1 Applicants must:

(a) satisfy the University's general entry requirements; and

normally have qualifications equivalent to GCE A-Level passes in three subjects with grades BBC; and normally have GCSE pass of grade B in Mathematics.

or

(b) provide evidence of their ability to undertake the programme through the accreditation of prior experiential learning.

6.2 *Applicants may be admitted directly to Year 2 from an approved Foundation Degree in Computing. Upon successful completion of year 2, these candidates may proceed directly to final year.*

7 EXEMPTIONS

7.1 Studies pursued and examinations passed in respect of other qualifications awarded by the University or by another university or other educational institution may be accepted as exempting candidates from part of an approved course provided that they shall register as students of the University for modules amounting to at least the final third of the credit value of the award at the highest level.

7.2 There is no advance standing for the Integrated Foundation Year.

8 PLACEMENT/STUDY ABROAD

8.1 Candidates shall undertake a period of industrial placement or study abroad after successful completion of Year 2 and before commencing Year 4 of the course. The placement/study period shall normally last for at least 25 weeks.

8.2 In order to progress to final year a candidate must satisfactorily complete or be exempt from industrial placement and normally successfully complete all outstanding Year II course modules.

8.3 Candidates who can provide documentary evidence of satisfactory work experience in computing may be exempt from Year 3 (Industrial Placement). (Such students would not be entitled to the award of DIS).

8.4 During the placement period students will be assessed as described in the Placement module specification.

8.5 Unplaced Students

(i) A student who is unable to obtain placement may, at the discretion of the Board of Examiners, exceptionally be permitted to proceed directly to final year of the BSc Hons Computing Science without DIS.

(ii) A student who is unable to obtain placement and who, in the opinion of the Board of Examiners, has not shown sufficient effort in obtaining placement may be required to withdraw from the course.

(iii) A student who is unable to obtain placement may, at the discretion of the Board of Examiners, be permitted to obtain leave of absence in order to continue seeking a suitable placement.

A student who has taken such leave of absence and who has not obtained a placement by the start of the final year may be permitted to proceed directly to final year of the BSc Hons Computing Science without DIS.

9 ATTENDANCE REQUIREMENTS

9.1 Students are expected to attend all classes associated with the programme and be punctual and regular in attendance.

9.2 A student who has not been in attendance for more than three days through illness or other cause must notify immediately the Course Director. The student shall state the reasons for the absence and whether it is likely to be prolonged. Where the absence is for a period of more than five working days, and is caused by illness which may affect their studies, the student shall provide appropriate medical certification in accordance with the General Regulations for Students.

9.3 Students who are absent without good cause for a substantial proportion of classes may be required to discontinue studies, in accordance with the General Regulations for Students.

10. RULES GOVERNING STUDENT CHOICE

10.1 Modules are offered as indicated in the attached tables (See Section 17). Revisions may be made in accordance with the University's quality assurance procedures. Module availability may vary and may

depend on a maximum or minimum limit set for the number of students taking the module.

11. EXAMINATION AND ASSESSMENT

11.1 The performance of candidates shall be assessed by the Board of Examiners in accordance with the Regulations Governing Examinations in Programme of Study.

11.2 Candidates shall be assessed in the modules for which they have enrolled in each year of study. At the discretion of the Board of Examiners candidates may be required to attend a viva voce examination.

11.3 Within each module candidates shall be assessed by a combination of coursework and examination in accordance with the attached table.

11.4 The pass mark for the module shall be 40%. Where a module is assessed by a combination of coursework and examination a minimum mark of 35% shall be received in each element.

11.5 The pass mark for the placement/intercalary year is 50%; a mark of 40% is sufficient for progression to the next stage of the programme.

12. SUBMISSION OF COURSEWORK

12.1 Coursework shall be submitted by the dates specified by the course committee.

12.2 Students may seek prior consent from the course committee to submit coursework after the official deadline; such requests must be accompanied by a satisfactory explanation, and in the case of illness by a medical certificate. This application shall be made to the Course Director.

12.3 Coursework submitted without consent after the deadline shall not normally be accepted.

13. PROGRESS

13.1 Subject to 14 hereof, candidates are required to pass all modules in each year of study in order to proceed to the next. Progress from semester 1 to semester 2 is automatic.

14. CONSEQUENCES OF FAILURE

14.1 Candidates who fail to satisfy the Board of Examiners in assessment may be permitted at the discretion of the Board to re-present themselves as specified in 14.2 for one or more supplementary examination and repeat such coursework or other assessment requirements as shall be prescribed by the Board. Such candidates may be exempted at the discretion of the Board from the normal

attendance requirements. Where candidates are required to repeat coursework or to take a supplementary examination the original mark in the failed element shall be replaced by a mark of 40% or the repeat mark whichever is the lower for the purpose of calculating the module result, except in the DIS/DAS year where the maximum mark allowed shall be 50%.

14.2 In each year, other than the final year, the consequences of failure shall normally be as follows:

BSc Honours Computing Science (DIS/DAS) inc Integrated Foundation Year

BSc Honours Computing Science (DIS/DAS)

BSc Honours Computing Science (Artificial Intelligence) (DIS/DAS)

BSc Honours Computing Science (Enterprise Technologies) (DIS/DAS)

BSc Honours Computing Science (Healthcare Technologies) (DIS/DAS)

BSc Honours Computing Science (Network Technologies) (DIS/DAS)

BEng Honours Software Engineering (DIS/DAS)

Failure at the First Attempt

Failure in modules with an overall value up to and including 60 credit points	Repeat specified examinations and/or coursework in the failed modules (examinations August).
Failure in modules with an overall value of between 60 and 80 credit points	Repeat specified examinations and/or coursework in the failed first semester module(s) (examinations January) and of specified examinations and/or coursework in the second semester modules (examinations May) with or without attendance OR withdraw from the programme.
Failure in modules with an overall value of more than 80 credit points	Withdraw from the programme.
Failure by candidates in year 2 of sandwich courses	Exceptionally second year students on sandwich courses may be permitted to commence the placement period, pending a requirement to represent themselves for supplementary written examinations or to repeat coursework.

Failure at the Second Attempt

Failure in modules with an overall value up to and including 20 credit points	Provided that the module(s) are not prerequisite(s) which must be passed,

	proceed to next year and repeat *once only* specified examination(s) and/or coursework in the failed module(s) at the next examination period (January or May). For the purpose of progression to Year 1 Honours all IFY modules are considered to be prerequisite.
Failure in modules with an overall value up to and including 40 credit points (except as above)	Repeat *once only* specified examination(s) and/or coursework in the failed module(s) at the next examination period (January or May or August if semester already repeated) with or without attendance (progress to next year not permitted).
Failure in modules with an overall value of more than 40 credit points	Withdraw from the programme.

Consequences of failure in Placement Year (DIS)

Failure at the First Attempt	
Failure in project	Resubmit project by a date specified by the Course Committee. (Maximum mark not to exceed 50%).
Failure in placement	Repeat *once only* all or part of placement.
Failure at the Second Attempt	
Failure in project	Repeat *once only* the project. (Maximum mark not to exceed 50%).
Failure in placement	Withdraw from the programme.

Consequences of failure in Intercalary Year (DAS)

Failure at the First Attempt	Repeat *once only* the study period in whole or in part OR take specified examinations and/or coursework. (Maximum mark not to exceed 50%.)
Failure at the Second Attempt	Withdraw from the programme OR repeat *once only* specified examinations and/or coursework. (Maximum mark not to exceed 50%.)

14.3 Failure in the Final Year (Honours degree)

In the final year the consequences of failure shall normally be as follows:

Failure in modules with an overall value up to and including 40 credit points	Repeat *once only* specified examination(s) and / or coursework in the failed module(s) in consideration for Honours classification (examinations August).
Failure in modules with an overall value of more than 40 credit points	Withdraw from the programme.

15. CLASSIFICATION OF FINAL RESULT

BSc Honours Computing Science (DIS/DAS)

BSc Honours Computing Science (Artificial Intelligence) (DIS/DAS)

BSc Honours Computing Science (Enterprise Technologies) (DIS/DAS)

BSc Honours Computing Science (Healthcare Technologies) (DIS/DAS)

BSc Honours Computing Science (Network Technologies) (DIS/DAS)

BEng Honours Software Engineering (DIS/DAS)

15.1 The overall Honours classification of successful candidates shall be based on the assessment results from all Level 6 modules. The weighting of each module's contribution to the overall mark shall be determined by the module credit value.

The tables at section 17 indicate the contribution of each module to the final award.

Classification of Final Result (Honours degree)

The following percentages shall be used to determine candidates' overall gradings:

Class I	At least 70%
Class II (division i) (IIi)	At least 60% and less than 70%
Class II (division ii) (IIii)	At least 50% and less than 60%
Class III	At least 40% and less than 50%

15.2 Award of Diploma in Industrial Studies or Diploma in Area Studies
The threshold for progression to the final year of the associated degree programme shall be 40%. To be eligible for the award of DIS/DAS candidates must have achieved an overall mark of at least 50% in the assessment requirements for the placement year/year of study abroad and have successfully completed the associated degree. The results of candidates shall be graded by order of merit as Pass with

Commendation and Pass. The following shall be the minimum percentages used in determining the overall gradings of candidates in the Diploma.

Pass with Commendation	70%
Pass	50%

Diploma in Computing (Integrated Foundation Year Exit Award)

15.3 All modules contribute to the final result. Table 5 indicates the contribution of each module to the final award. Each module contributes equally to the overall mark.

15.4 Classification of Final Result

Candidates who successfully complete the year will normally proceed to Year 1 of BSc Honours Computing Science (DIS/DAS). Candidates who wish to discontinue their studies may leave with a Diploma in Computing.

Where candidates chose to take the Exit Award the following shall be the minimum percentages acceptable in determining the overall gradings of candidates.

Pass with Commendation	60%
Pass	40%

The Board of Examiners shall recommend the award of a Pass with Commendation to a candidate who achieves an overall mark of at least 60%, provided that a module mark of at least 60% has been achieved in modules amounting to 60 credit points.

Certificate of Higher Education in Computing (Exit Award)

15.5 Year 1 modules as specified in Section 17 contribute to the final award. The weighting of each module's contribution to the overall mark shall be determined by its credit value.

15.6 Classification of Final Result

The following shall be the minimum percentages acceptable in determining the overall gradings of candidates for the exit award.

Pass with Commendation	60%
Pass	40%

The Board of Examiners shall recommend the award of a Pass with Commendation to a candidate who achieves an overall mark of at least 60%, provided that a module mark of at least 60% has been achieved in modules amounting to 60 credit points.

Associate Bachelor's Degree in Computing Science DIS/DAS (Exit Award)

15.7 Year 2 modules as specified in Section 17 contribute to the final award. The weighting of each module's contribution to the overall mark shall be determined by its credit value.

15.8 Classification of Final Result

The following shall be the minimum percentages acceptable in determining the overall gradings of candidates for the exit award.

Pass with Commendation	60%
Pass	40%

The Board of Examiners shall recommend the award of a Pass with Commendation to a candidate who achieves an overall mark of at least 60%, provided that a module mark of at least 60% has been achieved in modules amounting to 60 credit points.

16. ILLNESS AND OTHER EXTENUATING CIRCUMSTANCES

16.1 In any year other than final year:

The Board of Examiners may in the case of candidates who are prevented by illness or other sufficient cause from taking or completing the whole or part of the assessment during the programme, or whose results are substantially affected by illness or other sufficient cause, permit the candidates to complete, take, or repeat the assessment in one or more modules at an approved subsequent date.

16.2 Final year (Honours Degree):

The Board of Examiners may in the case of candidates who are prevented by illness or other sufficient cause from taking or completing the whole or part of the final stage assessment or whose results are substantially affected by illness or other sufficient cause:

(a) permit the candidate to complete, take, or repeat as candidates for the Honours degree, the assessment in one or more modules at an approved subsequent date **or**

(b) deem the candidate to have passed and recommend the award of an Aegrotat Honours Degree.

16.3 Before an Aegrotat award is recommended a candidate must have signified that he or she is willing to accept the award.

17. REVISIONS TO REGULATIONS

These regulations may be revised during the student's period of registration in accordance with the procedures approved by Senate.

Regulation Tables

Yr	Sem	Level	Module Title	Code	Credit Value	Status	Assessment Methods % Examination	% Coursework	Contribution to the Overall Mark of the Award
1	1	3	Principles of Computing: Hardware Technologies	COM050	20	C	-	100	1/6
1	1	3	Principles of Computing: Software Technologies	COM051	20	C	-	100	1/6
1	1 & 2	3	Professional Skills in Computing	COM052	20	C	-	100	1/6
1	1 & 2	3	Mathematical Skills for Computing	COM053	20	C	-	100	1/6
1	2	3	Principles of Computing: Information Networks	COM054	20	C	50	50	1/6
1	2	3	Computing in Business and Society	COM055	20	C	50	50	1/6

Table 5 – Integrated Foundation Year Modules

Key:

C = Compulsory

Y = Yes

Year/Level	Sem.	Module Title	Code	Credit Value	Status	Asst. Methods %EX	Asst. Methods %CW	Contribution to the overall mark of the Final Award
1/3	1	Programming I	COM158	20	C	-	100	-
1/4	1	Systems Analysis	COM144	20	C	75	25	-
1/4	2	Mathematics for Computing	COM137	20	C	75	25	-
1/4	2	Programming II	COM164	20	C	50	50	-
1/4	1,2	Introduction to Databases	COM147	20	C	50	50	-
1/4	1,2	Computer Technologies	COM140	20	C	-	100	-
2/5	1	Algorithms and Data Structures	COM328	20	C	75	25	-
2/5	1	Networks and Data Communications	COM347	20	C	75	25	-
2/5	1	Professional Issues and Entrepreneurship	COM411	10	C	-	100	-
2/5	1	Web Application Development	COM409	10	C	50	50	-
2/5	2	Systems Development	COM333	20	C	50	50	-
2/5	2	Systems Software	COM332	20	C	75	25	-
2/5	2	Advanced Programming	COM374	20	#C/O	75	25	-
2/5	2	Intro. to Knowledge Based Systems	COM340	20	O	75	25	-
3/5		Industrial Placement	COM367		C	-	100	(DIS/DAS)
4/6	1,2	*Computing Science Project / Software Engineering Project	COM562 / COM516	30	C	-	100	1/4
4/6	1	Software Systems Engineering	COM606	10	C	75	25	1/12
4/6	1	Advanced Database Systems	COM571	20	O (enterprise technology option)	75	25	1/6
4/6	1	Formal Requirements Specification	COM583	20	#C/O	75	25	1/6
4/6	1	IS Strategic Management	COM579	20	O (enterprise technology option)	75	25	1/6

Year/Level	Sem.	Module Title	Code	Credit Value	Status	Asst. Methods %EX	Asst. Methods %CW	Contribution to the overall mark of the Final Award
4/6	1	Intelligent Systems	COM542	20	O (artificial intelligence option)	75	25	1/6
4/6	1	Interactive Web Computing	COM554	20	O (enterprise technology option)	50	50	1/6
4/6	1	Mobile Computing	COM528	20	O (enterprise technologies option)	-	100	1/6
4/6	1	Health Informatics	COM510	20	O (healthcare technologies option)	50	50	1/6
4/6	2	Advanced Computer Networks	COM548	20	O (network technologies option)	75	25	1/6
4/6	2	Concurrent and Distributed Systems	COM577	20	O (network technologies option)	75	25	1/6
4/6	2	Natural Language Processing	COM578	20	O (artificial intelligence option)	50	50	1/6
4/6	2	Software Engineering Management	COM582	20	#C/O	75	25	1/6
4/6	2	Emerging Healthcare Technologies	COM641	20	O (healthcare technologies option)	50	50	1/6

Key:

C = Compulsory

O = Optional

= Compulsory for BEng

* = Students studying a CS specialism must complete an approved Computing Science Project in that specialism.

BSc Hons Computing Science students have a free choice from the options available.

BSc Hons Computing Science (Artificial Intelligence) students must study at least 2 artificial intelligence options.

BSc Hons Computing Science (Enterprise Technologies) students must study at least 2 enterprise technology options.

BSc Hons Computing Science (Healthcare Technologies) students must study at least 2 healthcare technologies options.

BSc Hons Computing Science (Network Technologies) students must study at least 2 network technologies options.

Table 6 - Honours Degree Modules

Student Prizes & Awards

The following is an indicative list of the prizes likely to be available in 2009/10:

BCS Medal and Prize
Most outstanding student in final year (nominations from all Honours courses in Computing Science).

Kainos Prize
Best and most innovative final year project in BSc Hons Computing Science.

Stirk Lamont
Best second year student from BEng Hons Software Engineering, BSc Hons Computing Science and BSc Information & Communication Technologies on COM347, Networks & Data Communications

Asidua Ltd
Best overall student on first year BSc Hons Computing Science.

McCrea Leebody
Nominations from all full-time first degree and HND courses in Engineering for best overall performance in year 1.

Alumni Fund Awards
Academic excellence shown by Year 1 students.