1	**Awarding institution**	Bangor University
2	**Teaching institution**	Bangor University
3	**Programme accredited by**	
4	**Final award**	BSc (Hons)
5	**Programme**	CISfB (Computer Information Systems for Business)
6	**UCAS code**	G501/ IN00
7	**QAA subject benchmarking group**	Computing
8	**Revision date**	August 2013

9 Educational Aims and Objectives

Aim: To produce graduates who can apply scientific and engineering methods, and make use of specialist knowledge of the design and application of computer systems that capture, process and transmit information. To equip graduates with CIS and business skills that will make them a sought after professional in business and industry. This programme mixes core concepts within CIS and application to the business domain.

Programme Objectives:

- To provide the foundations for understanding of core ideas, methods and technologies in CIS so the graduate can decide for themselves a customised route to further specialisation of employment or research;
- To provide the foundations for understanding the core ideas and processes in business and management.
- To provide practical experience in exercising and applying key skills in experimenting with computer systems & software;
- To provide the technical skills and background material so that the graduate will be able to conduct a research or development project in their final year of study;
- To provide the graduate with a range of specialist and transferable skills in computing and business;
- To provide the educational base for further professional development and lifelong learning.

Programme Philosophy: The focus of the course is to the practical application of computing technology to support different organizations. Specifically to provide a business focus to the Computer Information Systems programme. CIS professionals exist in a wide range of domains (such as business, health care, government and non-profit) and they enable successful performance in many organizations. In particular Information Systems in organizations have increasing strategic significance. The programme covers a broad range of subjects including mathematics, software engineering and design, networking, web technologies and business. The degree is divided into a number of knowledge areas including programming, networking, databases, web technologies and e-commerce, and business information systems. This programme is aimed to develop CIS proficient students who have a good understanding of business and marketing and can apply their knowledge to various sectors and applications.

10 Programme Outcomes

These Programme Outcomes are a statement of what the graduate should know and be able to do on completion of the programme. The Programme provides opportunities for students to acquire knowledge and understanding, develop and practise intellectual, practical and transferable skills and to demonstrate their proficiency with reference to acknowledged standards.

Knowledge and Understanding*

A Knowledge and understanding of:

1. *Underpinning Theory* for CIS and computer science in support of good algorithms and structured data systems.
2. *Design and implementation of computing* at all levels (architecture, databases and web applications).
3. *Use and deployment of CIS* and its relevance to modern human endeavour.
4. *Scientific Method, Approach and Transferable Skills*, including: experimental computer science; social and ethical issues; maintaining rigour and intellectual honesty in furthering computer science.
5. *Science and Engineering Practice* including: system specification; design principles; project planning and solving problems.
6. *Business processes* including economics, marketing, and international business.

Teaching/learning methods

The <u>principal</u> teaching and learning methods used to achieve the programme outcomes 1 – 6 are:

Teaching/learning methods	Programme Outcomes					
	1	2	3	4	5	6
Lectures	x	x	x	x	x	x
Tutorials	x	x	x		x	x
Independent Reading	x	x	x	x	x	x
Supervised Lab Sessions	x	x	x			
Unsupervised Lab Sessions	x	x	x	x	x	
Web browsing & searching	x	x	x	x	x	x
Individual project				x	x	
Small-group project					x	

Assessment

The <u>principal</u> methods for testing the programme outcomes 1 – 6 are:

Assessment Methods	Programme Outcomes					
	1	2	3	4	5	6
Unseen examinations	x	x	x	x		x
Laboratory reports	x	x	x	x		x
Assessed assignments	x	x	x	x		x
Oral presentations				x	x	x
Project reports				x	x	

Please Note This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. More detailed information on

the learning outcomes, content and teaching, learning and assessment methods of each module can be found in the course information handbook. The accuracy of the information contained in this document is reviewed by the University and may be checked by the Quality Assurance Agency for Higher Education.

Skills and other attributes

B   Cognitive Abilities and Skills
1. Knowledge and understanding of the broad area of CIS and business processes.
2. Appreciation of the breadth of CIS applications and business processes and an understanding of common approaches to application architecture and development.
3. Ability to formulate and analyse requirements and practical constraints of CIS computer systems.
4. Reason critically to pose and solve problems in computing and business.
5. Solve problems logically and systematically.
6. Formulate and critically evaluate test requirements.
7. Assess and choose optimal methods and approaches for specification, design, implementation and evaluation of computer-based systems and business information systems.
8. Gain an understanding of key business models, processes, regulations and procedures.
9. Develop skills in business finance, economics and marketing.

Teaching/learning methods: The CISfB degree is divided into 9 knowledge areas including Programming, networking, databases, web systems, and Visual Computing. Students taking a theme are exposed to progressively more complex topics relating to that theme. For CISfB the Business Information Systems theme covers accounting, marketing and international business. Cognitive abilities skills are developed progressively throughout the Programme. Students are encouraged to think for themselves by being presented with a range of problems to solve in the computing and business domain. Lectures present worked solutions to selected problems, examples from the business world. Problem solving is further reinforced in tutorials and laboratory work. Students are immersed in a number of core technical areas and are given a broad exposure to foundation material in a range of technical specialities.   Students are exposed to various CIS applications and computer systems at all levels and a strong element of software engineering is used to help students understand requirements analysis and test analysis. The Programme culminates in a substantive individual project during the conduction of which students are encouraged to deploy and further develop skills learnt in other modules. Projects can emphasise a science approach, business approach or engineering approach depending on student aspirations. Project topics are often chosen to emphasise this application domain.

Assessment: Written examinations are used to assess specific skills but are supplemented where appropriate with practical essay and programming assignments that test abilities to think, reason and express ideas and solve problems.

C Practical Skills
1. Specify, design, construct and operate computer-based systems including programming.
2. Design and carry out experiments to evaluate systems and design trade-offs.
3. Recognise risks or safety aspects in computer systems and business processes.
4. The ability to choose and use the appropriate computing tools including programming languages.
5. Edit and manipulate textual information and other on-line data in relevant contexts, especially business.
6. Access information in written and electronic form, including library and Internet search techniques.

Teaching/learning methods: The School has a Software Alliance Wales unit that is funded by the EU's Convergence European Social Fund through the Welsh Assembly Government SAW source industrial, real-life, projects for the second year Software Hut ICP2302 and third year individual projects ICP3099. Practical and experimental skills (1,2) are taught in the laboratory by demonstration and student 'hands-on' experience with individual coaching by staff, as needed. Safety (3) aspects are emphasised in software engineering modules and in the business modules taught by the Business School. Tools choice and use (4) is taught in many modules through example demonstrations and anecdotal case studies (especially business case studies taught by the Business School). Data manipulation abilities (5) are instilled by example and through laboratory demonstration sessions. Information retrieval skills (6) are taught explicitly in modules as well as being encouraged by research anecdotes and case studies and assignment work.

Assessment: These areas are assessed through assignments (including essays and programming practicals).

D Transferable Skills & Professional Issues
1. Organise data for visualisation, analysis, extraction and evaluation of information.
2. Prepare descriptive and interpretative written reports.
3. Use word processors, spreadsheets and databases.
4. Learn independently and appreciate the need for continuing personal professional development and life-long learning.
5. Communicate effectively - written, oral, graphical, mathematical.
6. Present a case and justify a course of action.
7. See patterns and make orderly connections in complex situations.
8. Manage people, resources and time including one's own.
9. Co-operate with others to achieve a common goal and accept leading and subordinate roles in a team.
10. Recognise professional, moral and ethical issues involved in exploiting computing technology.

Teaching/learning methods: Report-writing skills, interpreting information, and using information preparation packages (1-7,10) are emphasised in assignment reports and essays. These points are reinforced in a substantive final year individual project. Students learn to work together in small- and medium-sized teams (8,9) in a Software Engineering project. Ethical, moral and professional issues (10) are reinforced in Lectures and practical exercises.   Students on this programme gain additional writing and communications skills from essay and business report exercises set from modules in the Business School. **Assessment:** These areas are assessed through written assignments, software programming exercises and individual and group projects. Group work is emphasised in the Software Hut project; students need to work together as a group, however, they receive an individual mark

Programme Structure, module information and progression requirements

The programme is offered as a full-time course, normally lasting for three years (BSc with Honours) with entry at Level 4. At Level 6, the BSc scheme includes a demanding individual project and a degree of specialisation within the knowledge areas. Except where indicated, all modules are 10 credits where one credit represents 10 notional hours of learning. The CISfB degree is divided into nine knowledge areas (SE, FoA, NET, WEB, SYS, IM, PROF, VS and BIS). Each area runs throughout the three years of the degree. Students are exposed to progressively more complex topics relating to that area.

	(SE) Programming & Software Engineering	(FoA) Foundations and Applications	(NET) Net-working	(WEB) Web technologies & e-commerce	(SYS) Systems and their Admin.	(IM) Data & Information Management	(PROF) The professional dimension	(VC) Visual Computing & User Experience	(BIS) Business Information Systems	Progression
Level 6 (120 credits)	ICP3099 Individual Project (30)	ICP3025 Applications of AI	ICP3011 Computer & Network Security	ICP3023 Web-based Applications ICP3123 Internet Tech and e-commerce	ASB3101 Human Resource Management	ICP3027 Database Systems	ICP3099 Individual Project (30) ICP3064 Business Process Re-Engineering		ASB3109 Strategic Management ASB3102 International Business	**Graduation requirements:** Degree classification calculated on a 2:1 ratio of final and second year averages respectively. The individual project ICP3099 is a core module and therefore must be passed at 40% or above.
Level 5 (120 credits)	ICP2302 Software Hut (20)	ICP2052 Application Development (20)			ICP2002 System Administration & Maintenance (20) ASB2104 Principles of Organising & Management	ICP2221 Databases ICP2225 Knowledge Management & info. retrieval	ICP2302 Software Hut (20)	ASB2109 Marketing Research	ASB2112 Business Information Systems ASB2103 Principles of Marketing	**Progression requirements:** At least 80 credits passed at 40% and no module less than 30%. **Diploma :** At least 80 credits passed at 40% and no module less than 30%.
Level 4 (120 credits)	ICP1022 Programming Fundamentals ICP1023 OO Programming in Java	ICP1030 Computing Fundamentals (20)		ICP1026 Web Tech.	ICP1002 Unix Operating System ICP1001 Essential IT Skills		ICP1064 Professional Perspectives	ICP1036 HCI & Computer Graphics	ASB1104 Introduction to Marketing Option: ASB1110 Management and Financial Accounting (20) OR ASB1112 Introduction to Economics (20)	**Progression requirements** : At least 80 credits passed at 40% and no module less than 30%. **Certificate :** At least 80 credits passed at 40% and no module less than 30%.

Note: other Schools deliver the two modules in italics.

12. Criteria for admission.

BSc (at Level 1)
- 200 tariff points including at least 2 A2 level qualifications
- GNVQ (Advanced) with overall Merit in an appropriate subject plus GCSE pass (grade C or above) in Maths.
- BTEC National Diploma Level III with 3 Merits plus GCSE pass (grade C or above) in Maths.
- Scottish Highers with BBCC at Honours level, plus English Language at the standard grade.
- Irish Leaving Certificate with 380 points (BBCCC) at Honours level including at least grade D in English.
- International Baccalaureate with 27 points.

BSc (at Level 2)
- For direct entry at Level 2, the Admissions Tutor considers the merits of each application individually.

13. Particular Support for Learning

- Student Handbook.
- Pastoral tutoring on an individual basis.
- Individual tutors conduct formal academic review twice each Session and give feedback on Semester 1 results.
- In-house reading room, general computing facilities and common room.
- Extensive and up-to-date laboratories and computational facilities for undergraduates.
- University Dyslexia Assessment Unit.
- Access to Internet and e-mail is provided by the School and at other University sites by Information Services.
- Peer Guide induction for new students.
- Student led drop in sessions where second year students provide guidance for first year students
- Blackboard online e-learning environment (for electronic submission of work and use of TurnItIn for plagiarism)

14. Career education, information and guidance

Provision of careers information and guidance
- Designated industrial liaison officer and careers co-ordinator.
- Subject-specific careers web site with external links and links to the University's careers service.
- Presentations by alumni and by the University's careers service.

Employability
- Graduate destination data considered by the Teaching & Learning Committee.
- Industrial Liaison Panel considers requirements of labour market and employers' perspective on graduates.
- Links with companies offering summer and year-out placements.

15. Qualifications

The qualifications awarded comply with the national framework for higher education qualifications as follows:

BSc   Level 6 (Bachelors with Honours)

Diploma: Level 5 (Intermediate) (HE2)

Certificate: Level 4 Certificate (HE1)

CIS for Business Level 4 Primary links to Programme Outcomes 2012/13	ICP1001 Essential IT Skills	ICP1036 HCI & Computer Graphics	ICP1030 Computing Fundamentals	ICP1022 Programming Fundamentals	ICP1023 OO Prog with Java	ICP1026 Web Technologies	ICP1002 Unix Operating System	ICP1064 Prof Perspectives	ASB1104 Introduction to Marketing	ASB1110 Management and Financial Accounting (20)	ASB1112 Introduction to Economics (20)
Compulsory (C), Optional (O)	C	C	C	C	C	C	C	C	C	O	O
A. Knowledge & Understanding credits	10	10	20	10	10	10	10	10	10	20	20
1. Underpinning Theory	X		X				X			X	X
2. Design and implementation of computing	X	X	X	X	X	X	X				
3. Use and deployment of CIS	X	X	X	X	X		X			X	X
4. Scientific Method, Approach and Transferable Skills	X	X			X			X			
5. Science and Engineering Practice	X	X						X			
6. Business processes								X	X	X	X
B. Cognitive Abilities and Skills											
1. Knowledge and understanding of the broad area of CIS and business processes	X	X	X			X	X	X	X		
2. Appreciation of the breadth of CIS applications and business processes and an understanding of common approaches to application architecture and development.	X		X	X	X			X			
3. Ability to formulate & analyse requirements and practical constraints of CIS computer systems.	X	X	X	X	X	X		X		X	X
4. Reason critically to pose and solve problems in computing and business.	X	X	X	X	X	X	X	X		X	X
5. Solve problems logically and systematically.	X	X	X	X	X	X	X			X	X
6. Formulate and critically evaluate test requirements.	X		X		X		X				
7. Assess and choose optimal methods and approaches for specification, design, implementation and evaluation of computer-based systems and business information systems.	X	X	X				X			X	X
8. Gain an understanding of key business models, processes, regulations and procedures.									X		
9. Develop skills in business finance, economics and marketing.									X	X	X
C. Practical Skills											
1. Specify, design, construct and operate computer-based systems including programming.			X	X	X	X	X				
2. Design and carry out experiments to evaluate systems and design trade-offs.		X	X			X	X			X	X
3. Recognise risks or safety aspects in computer systems and business processes.		X	X			X		X			
4. The ability to choose and use the appropriate computing tools including program languages.			X	X	X	X			X		
5. Edit and manipulate textual information and other on-line data in relevant contexts.	X	X	X					X		X	
6. Access information in written & electronic form, incl. library and Internet	X	X	X			X		X	X		

search techniques.											
D. Transferable Skills & Professional Issues											
1. Organise data for visualisation, analysis, extraction and evaluation of information.	X		X								
2. Prepare descriptive and interpretative written reports.	X	X	X				X	X	X		
3. Use word processors, spreadsheets and databases.	X	X	X							X	X
4. Learn independently & appreciate the need for continuing personal professional development and life-long learning.		X		X	X			X		X	X
5. Communicate effectively - written, oral, graphical, mathematical.	X	X	X			X		X	X		X
6. Present a case and justify a course of action.	X		X			X		X			
7. See patterns and make orderly connections in complex situations.	X		X	X	X	X	X			X	X
8. Manage people, resources and time including one's own.		X	X			X		X			
9. Co-operate with others to achieve a common goal and accept leading and subordinate roles in a team.		X	X			X		X			
10. Recognise professional, moral and ethical issues involved in exploiting computing technology.		X	X			X		X		X	X

CIS for Business Level 5 Primary links to Programme Outcomes 2012/13	ICP2002 System Administration	ICP2221 Databases	ICP2052 Application Dev	ICP2225 Knowledge Management & Information Retrieval	ICP2302 Software Hut	ASB2112 – Bus Information systems	ASB2104 Principles of Organising & Management	ASB2103 Principles of Marketing
Compulsory (C), Core (core), Optional (O)	C	C	C	C	Core	C	C	C
A. Knowledge & Understanding credits	20	10	20	10	20	10	10	20
1. Underpinning Theory	X	X						
2. Design and implementation of computing	X		X	X	X	X		
3. Use and deployment of CIS	X	X	X	X				
4. Scientific Method, Approach and Transferable Skills	X		X					
5. Science and Engineering Practice	X	X	X	X	X	X		
6. Business processes				X	X		X	X
B. Cognitive Abilities and Skills						X		
1. Knowledge and understanding of the broad area of CIS and business processes	X	X	X		X	X	X	
2. Appreciation of the breadth of CIS applications and business processes and an understanding of common approaches to application architecture and development.		X	X	X	X			
8. Ability to formulate & analyse requirements and practical constraints of CIS computer systems.		X	X	X		X		X
4. Reason critically to pose and solve problems in computing and business.	X	X	X	X	X			X
5. Solve problems logically and systematically.	X		X	X	X			
6. Formulate and critically evaluate test requirements.	X		X	X	X			
7. Assess and choose optimal methods and approaches for specification, design, implementation and evaluation of computer-based systems and business information systems.		X	X	X	X		X	
8. Gain an understanding of key business models, processes, regulations and procedures.				X		X	X	X
9. Develop skills in business finance, economics and marketing.				X		X	X	X
C. Practical Skills						X		
1. Specify, design, construct and operate computer-based systems including programming.		X	X	X	X	X		
2. Design and carry out experiments to evaluate systems and design trade-offs.	X	X	X	X	X			
3. Recognise risks or safety aspects in computer systems and business processes.	X		X		X			
4. The ability to choose and use the appropriate computing tools including program languages.		X	X	X	X			
5. Edit and manipulate textual information and other on-line data in relevant contexts.				X	X	X		X
6. Access information in written & electronic form, incl. library and Internet search techniques.	X							
D. Transferable Skills & Professional Issues								
1. Organise data for visualisation, analysis, extraction and evaluation of information.		X				X	X	
2. Prepare descriptive and interpretative written reports.			X	X	X	X		X
3. Use word processors, spreadsheets and databases.		X	X		X	X		
4. Learn independently & appreciate the need for continuing personal professional development and life-long learning.	X	X		X	X	X		
5. Communicate effectively - written, oral, graphical, mathematical.		X			X	X	X	X
6. Present a case and justify a course of action.	X		X		X			X
7. See patterns and make orderly connections in complex situations.	X	X	X	X			X	X
8. Manage people, resources and time including one's own.	X		X		X		X	
9. Co-operate with others to achieve a common goal and accept leading and subordinate roles in a team.			X		X	X		
10. Recognise professional, moral and ethical issues involved in exploiting computing technology.	X		X		X			

CIS for Business Level 6 Primary links to Programme Outcomes 2012/13	ICP3011 Net & Security	ICP3025 App. of AI	ICP3099 Individual Proj	ICP3023 Web-based Applics	ICP3027 database Systems	ICP3123 Internet Technologies	ICP3064 Business Process Re-engineering	ASB3101 Human Resource	ASB3109 Strategic Management	ASB3102 International Business
Compulsory (C), optional (O), Core (Core)	C	C	Core	C	C	C	C	C	C	C
A. Knowledge & Understanding credits	10	10	30	10	10	10	10	10	10	10
1. Underpinning Theory										X
2. Design and implementation of computing	X	X		X	X	X	X			
3. Use and deployment of CIS	X	X		X	X	X				
4. Scientific Method, Approach and Transferable Skills			X			X				
5. Science and Engineering Practice	X	X	X	X			X			
6. Business processes							X	X	X	X
B. Cognitive Abilities and Skills										
1. Knowledge and understanding of the broad area of CIS and business processes	X	X		X		X	X		X	X
2. Appreciation of the breadth of CIS applications and business processes and an understanding of common approaches to application architecture and development.		X		X		X	X			
9. Ability to formulate & analyse requirements and practical constraints of CIS computer systems.	X	X	X	X			X			
4. Reason critically to pose and solve problems in computing and business.	X	X	X	X		X		X		
5. Solve problems logically and systematically.	X		X	X	X			X		X
6. Formulate and critically evaluate test requirements.	X		X	X	X	X				X
7. Assess and choose optimal methods and approaches for specification, design, implementation and evaluation of computer-based systems and business information systems.	X		X		X	X			X	
8. Gain an understanding of key business models, processes, regulations and procedures.								X	X	X
9. Develop skills in business finance, economics and marketing.								X	X	X
C. Practical Skills										
1. Specify, design, construct and operate computer-based systems including programming.	X	X	X	X	X	X				
2. Design and carry out experiments to evaluate systems and design trade-offs.	X	X	X	X	X	X				
3. Recognise risks or safety aspects in computer systems and business processes.	X		X				X			
4. The ability to choose and use the appropriate computing tools including program languages.	X		X	X	X	X				
5. Edit and manipulate textual information and other on-line data in relevant contexts.			X				X	X	X	X
6. Access information in written & electronic form, incl. library and Internet search techniques.	X		X			X	X	X	X	X
D. Transferable Skills & Professional Issues										
1. Organise data for visualisation, analysis, extraction and evaluation of information.		X	X	X	X	X	X			
2. Prepare descriptive and interpretative written reports.		X	X	X		X	X	X	X	X

3.　Use word processors, spreadsheets and databases.		X	X	X		X		X	X	X
4.　Learn independently & appreciate the need for continuing personal professional development and life-long learning.	X	X	X		X	X	X	X		X
5.　Communicate effectively - written, oral, graphical, mathematical.	X	X	X	X	X	X	X			
6. Present a case and justify a course of action.	X	X	X			X	X			
7.　See patterns and make orderly connections in complex situations.	X		X	X			X		X	
8.　Manage people, resources and time including one's own.			X			X	X			
9.　Co-operate with others to achieve a common goal and accept leading and subordinate roles in a team.						X			X	
10.　Recognise professional, moral and ethical issues involved in exploiting computing technology.	X		X			X	X		X	