PROGRAMME SPECIFICATION

Awarding body/institution	Glyndŵr University
Teaching institution (if different from above)	Glyndŵr University
Details of accreditation by a professional, statutory or regulatory body (including link to relevant website)	N/A
What type of accreditation does this programme lead to?	N/A
Is accreditation in some way dependent on choices made by students?	N/A
Final award/s available eg BSc/DipHe/CertHE	MComp Computing MComp Computer Science MComp Computer Networks & Security MComp Computer Game Development
Award title	MComp
JACS 3 code	I100, I100, I120, I600
UCAS code (available from Admissions)	P24B MComp Computing M27G MComp Computer Science 3LWR MComp Computer Networks & Security 57KS MComp Computer Game Development
Relevant QAA subject benchmark statement/s	The Quality Assurance Agency for Higher Education 2011 (ISBN 978 1 84979 284 4) defines Computing as: "Computing is the discipline associated with the structuring and organisation of information as well as the automatic processing and communication of that information. The application of ideas from computing underpins innovation across a wide range of activity, including engineering, business, education, science and entertainment". Additionally it defines the contents of the Integrated Masters programmes as: "Integrated master's degrees (such as MEng or MComp) should possess a strong appropriate ethos and orientation reflecting professional practice and/or applications within the discipline, and this will typically include attention to: • the underlying scientific principles • relevant models

	• current technologies and the trends in terms of their development • relevant management and business practices, including economic considerations and evaluation of commercial risks • knowledge of a wide range of related products and systems, and the ability to review such items for appropriate enhancement • disciplined approaches to the problems of risk, including such matters as safety and security • knowledge of a wide range of relevant practice, processes as well as tools and components • engagement in creative and innovative developments involving technology."
Other external and internal reference points used to inform the programme outcomes	
Mode/s of study *(p/t, f/t, distance learning)*	Full Time
Language of study	English
Date at which the programme specification was written or revised	September 2014

Criteria for admission to the programme

MComp is an Integrated Masters qualification in the Computer related subject area and is intended for students who enter the undergraduate programmes with high UCAS points. It extends the knowledge gained in their undergraduate study with more advanced specialised material reflecting current research at the "cutting edge" of the discipline. It is offered in Computing, Computer Science, Computer Networks & Security and Computer Game Development.

General Academic Requirements

Entry requirements are in accordance with the University regulations.

In addition to the general entry requirements for the Computing programmes, there is a minimum requirement of 280 UCAS tariff points at GCE A Level or equivalent. Equivalent qualifications from an overseas country will be accepted.

Applicants, who do not meet the criteria above, will be assessed on an individual basis by interview.

Applicants whose first language is not English, or whose Bachelor degree is not from a university in an English speaking country, are required to provide evidence of proficiency in English by having attained an IELTS certificate or its equivalent:

Students should have achieved a minimum IELTS score of 6.0 (with no band lower than 5.5) within the previous 2 years.

Pre-sessional English language courses are available at the University Second Language Learning Centre for students who wish to improve their language skills prior to commencing their studies.

AP(E)L

In some cases it may be appropriate to provide students with an exemption form studying certain modules. This will be done in line with the Glyndŵr University AP(E)L procedures.

Aims of the programme

The MComp suite of programmes in the computing subjects is both academic and industry facing and is intended for students who wish to extend their study to the master's level in their chosen area of expertise. Modules studied on the programme have been designed to provide the skills to meet industrial and commercial needs as well as those of traditional academic standing. In addition to the academic and theoretical aspects the emphasis will be on the practical side to enable graduates to practise as computing and IT professionals or continue with further study towards a doctorate.

The programme aims to provide the students with the following:

- provide specialist, advanced technical skills

- produce practitioners with an advanced understanding of and competence with, the hardware and software available and/or needed for the development and use of computer systems

- enable students to access, critically appraise and disseminate research results

- provide students with a sound basis for further research and / or professional development.

Distinctive features of the programme

The MComp Integrated master's degrees possess a strong reflection of the professional practice and applications in the areas of:

- the underlying scientific principles
- current technologies and the trends in terms of their development
- relevant management and business practices, including economic considerations and evaluation of commercial risks
- knowledge of a wide range of related products and systems, and the ability to review such items for appropriate enhancement
- disciplined approaches to the problems of risk, including such matters as safety and security
- knowledge of a wide range of relevant practice, processes as well as tools and components.

The MComp programmes have a number of common modules intended to ensure students have a good overall background. One of the essential skills required of students at a master's level is to be able to undertake Postgraduate Research and so the methods required to do this are studied. This provides a path into further academic study as well as being useful in a commercial environment. Computing is a field that is continually changing and so it is essential that students gain the ability to keep up to date with the latest technologies. Studying the Future Emerging Technologies modules provides these skills.

As part of the Integrated Masters Computing programmes students will be expected to undertake an extended Project/ dissertation in the area of the specialism that they have chosen. This is supported by the staff with a deep interest in the area of research.

In addition to the generic master's skills the MComp in Computing concentrates on providing students with the skills required in the commercial world particularly in the area of website design and development. Since the way computers are used in the workplace has become so important a Human Factors Engineering module has been included in the programme.

The area of specialism in the MComp Computer Science has a commercial slant and focuses particularly in the area of Mobile applications which due to the availability of a huge range of devices has become such an important subject.

MComp Computer Networks & Security concentrates on the design, building and troubleshooting associated with large networks. This builds on the strong area of research which has been developed within the computer networking department.

The MComp in Computer Game Development enables students to gain a deep insight into how Artificial Intelligence is applied when developing games. This is intended to support the Dissertation work that the students will be undertaking. Additionally a module is studied investigating how computer games are applied and developed within a mobile environment.

When designing this curriculum the programme team based the decisions on the previous 5 years' experience of running undergraduate and postgraduate courses. In particular discussions have taken place with Universities who provide students for both the BSc and MSc programmes and the Computing Industrial Liaison Group. When validating the MComp programmes it has been decided to concentrate on the core skills. At present the team offer MSc programmes in Computing, Computer Science and Computer Networking and the intention of this programme is to concentrate on the experience gained in delivering these programmes.

Programme structures and requirements, levels, modules, credits and awards

The MComp programmes are offered in full-time mode only.

As with most Integrated master's programmes the MComp is an extension of the BSc (Hons) degree. The first 3 years of the programme are the same as the BSc (Hons) degree and so students when entering level 7 will already have 360 credits. Studying at Level 7 will then give them a further 120 credits to gain the masters' qualification.

In order to successfully progress onto the MComp component of an Integrated Masters degree, students must meet the following requirements:

1. Successful completion of 120 Level 4 credits

2. Successful completion of 120 Level 5 credits with an aggregate score for the Level of no less than 55% after all re-assessment,
3. Successful completion of 120 Level 6 credits (max 2 attempts)

In order to progress onto the Integrated Masters component of the award, students must normally successfully complete their 120 Level 6 credits within two attempts at a module.

Level 7	MComp Computing Year 4 (120 Credits)	MComp Computer Science Year 4 (120 Credits)	MComp Computer Networks & Security Year 4 (120 Credits)	MComp Computer Game Development Year 4 (120 Credits)
Level 6	BSc(Hons) Computing Year 3 (120 credits)	BSc(Hons) Computer Science Year 3 (120 credits)	BSc(Hons) Computer Networks & Security Year 3 (120 credits)	BSc(Hons) Computer Game Development Year 3
Level 5	BSc(Hons) Computing Year 2 (120 credits)	BSc(Hons) Computer Science Year 2 (120 credits)	BSc(Hons) Computer Networks & Security Year 2 (120 credits)	BSc(Hons) Computer Game Development Year 2
Level 4	BSc(Hons) Computing Year 1 (120 credits)	BSc(Hons) Computer Science Year 1 (120 credits)	BSc(Hons) Computer Networks & Security Year 1 (120 credits)	BSc(Hons) Computer Game Development Year 1

Students who do not pass all the elements of the MComp may be awarded a BSc (Hons) degree. The classification will be based on the student's performance at level 5 and level 6 as defined in the Glyndŵr University Undergraduate regulations.

Through studying full time, the entire MComp syllabus may be completed in 4 years, the level 7 taking 1 year. Modules for level 7 are equivalent to 20 credits except for the Project/Dissertation which is 40 credits. Typically, a student studies 40 credits per trimester (normally 2 modules) with the Project/Dissertation running for both trimesters. These are studied in trimester 1 and 2.

Students are expected to attend lectures, tutorials and practical session as specified in the Glyndŵr University timetables. Additionally for the networking modules students will be expected to study on-line material.

MComp Computing

Typical Full time delivery - September start at the Wrexham Campus

MComp Computing			
Level 7 Trimester 2	Future & Emerging Technology	Commercial Website Design & Development	MComp Dissertation
Level 7 Trimester 1	Post Graduate Study and Research Methods	Human Factors Engineering	
Level 6 Trimester 2	21st Century Computing	Project	
Level 6 Trimester 1	IT Project Management	Level 6 Option	Distributed Data
Level 5 Trimester 2	Group Project Implementation	Responsible Computing	Applied Programming
Level 5 Trimester 1	Group Project Design	Human Computer Relationships	Level 5 Option
Level 4 Trimester 2	Professional Development in Computing: Information Engineering / Problem Solving with Programming	Web Technologies	Level 4 Option
Level 4 Trimester 1		Managing Data	Computer Systems

MComp Computer Science

Typical Full time delivery September start at the Wrexham Campus

MComp Computer Science			
Level 7 Trimester 2	Future & Emerging Technology	Internet and Mobile Application Development	MComp Dissertation
Level 7 Trimester 1	Post Graduate Study and Research Methods	Commercial Website Design & Development	
Level 6 Trimester 2	21st Century Computing	Project	
Level 6 Trimester 1	IT Project Management	Singularities and Society	Distributed Data
Level 5 Trimester 2	Group Project Implementation	Responsible Computing	Applied Programming
Level 5 Trimester 1	Group Project Design	Artificial Intelligence	Level 5 Option
Level 4 Trimester 2	Professional Development / Problem-solving Programming	Computational Thinking	Level 4 Option
Level 4 Trimester 1		Managing Data	Computer Systems

MComp Computer Networks & Security

Typical Full time delivery September start at the Wrexham Campus

MComp Computer Networks & Security			
Level 7 Trimester 2	Future & Emerging Technology	Remote Access and Security	MComp Dissertation
Level 7 Trimester 1	Post Graduate Study and Research Methods	Network Protocols and Algorithms	
Level 6 Trimester 2	21st Century Computing	Project	
Level 6 Trimester 1	IT Project Management	Network Management	Applied Network Security
Level 5 Trimester 2	Group Project Implementation	Responsible Computing	Server Technology
Level 5 Trimester 1	Group Project Design	Data Communications and Networks	Level 5 Option
Level 4 Trimester 2	Professional Development in Computing: Information Engineering / Problem Solving with Programming	Network Technologies	Level 4 Option
Level 4 Trimester 1		Managing Data	Computer Systems

MComp Computer Game Development

Typical Full time delivery September start at the Wrexham Campus

MComp Computer Game Development				
Level 7 Trimester 2	Future & Emerging Technology		Internet and Mobile Application Development	MComp Dissertation
Level 7 Trimester 1	Post Graduate Study and Research Methods		Advanced Artificial Intelligence	
Level 6 Trimester 2	21st Century Computing	Project		
Level 6 Trimester 1	Advanced Mobile Development	Advanced 3D Modelling & Animation		Collaborative Technology
Level 5 Trimester 2	Group Project Design	Group Project Implementation		Serious Games Technology
Level 5 Trimester 1	Internet & Mobile App Development	Audio Technology for Games		3D Modelling & Animation
Level 4 Trimester 2	Professional Development in Computing: Information Engineering	Problem Solving with Programming	Digital Media Principles	Computing Maths
Level 4 Trimester 1			Computer Systems	Interactive Design

All modules are 20 credits apart from the Level 6 honours Project module and the MComp Dissertation at level 7 which are 40 credits.

MComp module structure

Module Title	Module Code	Computing	Computer Networks & Security	Computer Game Development	Computer Science
LEVEL SEVEN					
MComp Dissertation (40 Credits)	COM723	C	C	C	C
Post Graduate Study and Research Methods	COMM50	C	C	C	C
Future & Emerging Technologies	COMM51	C	C	C	C
Commercial Website Design & Development	COM707	C			C
Human Factors Engineering	COM721	C			
Remote Access and Security	COMM55		C		
Network Protocols and Algorithms	COMM54		C		
Internet and Mobile Application Development	COM708			C	C
Advanced Artificial Intelligence	COM722			C	
LEVEL SIX					
Project (40 credits)	COM625	C	C	C	C
Singularities and Society	COM626	O			C
Computability and Optimisation	COM627	O			
Applied Data Mining	COM628	O			
Advanced Web Technology	COM629	O			
Advanced Mobile Development	COM630	O		C	
Collaborative Technology	COM631	O		C	
Advanced 3D Modelling & Animation	COM632	O		C	
Telecommunications Management	COM633	O			
Applied Network Security	COM634	O	C		
Network Management	COM635	O	C		
Distributed Data	COM636	C			C
21st Century Computing	COM623	C	C	C	C
IT Project Management	COM614	C	C		C

Windows & Web based Application Development	COM616	O			
LEVEL FIVE					
Artificial Intelligence	COM521	O	O		C
Serious Games Technology	COM522	O		C	
3D Modelling & Animation	COM505	O		C	
Audio Technology for Games	COM503			C	
Internet & Mobile App Development	COM502	O	O	C	O
Server Technology	COM523		C		
Data Communications and Networks	COM524	O	C		O
Student Initiated Module (SIM5)	COM525	O	O		O
Applied Programming	COM526	C	O		C
Human Computer Relationships	COM527	C	O		O
Responsible Computing	COM528	C	C		C
Group Project Implementation	COM530	C	C	C	C
Group Project Design	COM529	C	C	C	C
CCNA Routing and Switching: Connecting Networks	COM531	O	O		O
CCNA R&S Scaling Networks	COM532	O	O		O
Databases and Web-based Information Systems	COM533	O	O		O
Agile Application Development	COM518	O	O		O
Database Administration and Optimisation	COM519	O	O		O
LEVEL FOUR					
Computational Thinking	COM418	O	O		C
Interactive Design	COM419	O		C	
Computing Maths	COM420	O	O	C	O
Digital Media Principles	COM405	O	O	C	O
Network Technologies	COM421	O	C		O
Student Initiated Module (SIM4)	COM422	O	O		O
Web Technologies	COM423	C	O		O
Computer Systems	COM424	C	C	C	C
Managing Data	COM425	C	C		C
Problem Solving with Programming	COM426	C	C	C	C
Professional Development in Computing: Information Engineering	COM427	C	C	C	C
CCNA R&S - Routing and Switching Essentials	COM429	O	O		O
CCNA R&S Introduction to Networks	COM428	O	O		O
Intro to JavaScript programming and DOM scripting	COM427	O	O		O
IT Business Graphics	COM430	O	O		O

IT for Information Analysis	COM431	O	O		O

Module tutors

Module Title	Level	Module Leader	
MComp Dissertation	7	Rich Picking	
Post Graduate Study and Research Methods	7	Stuart Cunningham	
Future & Emerging Technology	7	Vic Grout	
Commercial Website Design & Development	7	John Worden	
Human Factors Engineering	7	Rich Picking	
Remote Access and Security	7	John Davies	
Network Protocols and Algorithms	7	John Davies	
Internet and Mobile Application Development	7	John Worden	
Advanced Artificial Intelligence	7	Vic Grout	
21st Century Computing	6	Vic Grout	
Advanced 3D Modelling & Animation	6	Nathan Roberts	
Advanced Mobile Development	6	Jason Matthews	
Applied Data Mining	6	Bindu Jose	
Applied Network Security	6	Stephen Caulder	
Collaborative Technology	6	Richard Hebblewhite	
Computability and Optimisation	6	Bo Liu	
Distributed Data	6	Bindu Jose	
Network Management	6	John Davies	
Project	6	Vic Grout	
IT Project Management	6	Denise Oram	
Singularities and Society	6	Denise Oram	
Telecommunications Management	6	Nigel Houlden	
Advanced Web Technology	6	Jason Matthews	
Windows & Web based Application Development	6	John Worden	
3D Modelling & Animation	5	Nathan Roberts	
Applied Programming	5	John Worden	
Artificial Intelligence	5	Bo Liu	
Audio Technology for Games	5	Richard J Smith	
Data Communications and Networks	5	Nigel Houlden	
Group Project Design	5	John Worden	
Group Project Implementation	5	John Worden	
Human Computer Relationships	5	Rich Picking	
Internet & Mobile App Development	5	Jason Matthews	
Responsible Computing	5	Denise Oram	
Serious Games Technology	5	Nathan Roberts	
Server Technology	5	John Davies	
SIM5	5	John Worden	
CCNA Routing and Switching: Connecting Networks	5	Nigel Houlden	
CCNA R&S Scaling Networks	5	Nigel Houlden	
Databases and Web-based Information Systems	5	John Worden	

Agile Application Development	5	John Worden	
Database Administration and Optimisation	5	Bindu Jose	
Computational Thinking	4	Vic Grout	
Computer Systems	4	Stuart Cunningham	
Computing Maths	4	Vic Grout	
Digital Media Principles	4	Nathan Roberts	
Interactive Design	4	Richard Hebblewhite	
Managing Data	4	Bindu Jose	
Network Technologies	4	Nigel Houlden	
Problem Solving with Programming	4	Rich Picking	
Professional Development in Computing: Information Engineering	4	Denise Oram	
Web Technologies	4	John Worden	
SIM4	4	John Worden	
CCNA R&S - Routing and Switching Essentials	4	Nigel Houlden	
CCNA R&S Introduction to Networks	4	Nigel Houlden	
Intro to JavaScript programming and DOM scripting	4	John Worden	
IT Business Graphics	4	Julie Mayers	
IT for Information Analysis	4	Julie Mayers	

Intended learning outcomes of the programme

In addition to achieving the intended learning outcomes associated with the appropriate BSc (Hons) degree, on successful completed of the MComp, a graduate should demonstrate knowledge and skills as listed below. Please note that the BSc learning outcomes can be accessed via the BSc programme specifications available on the University's website.

A: Knowledge and Understanding

A1	A critical appreciation of the facts, concepts, principles and theories relating to computing and computer applications as appropriate to the programme of study.
A2	The range of tools necessary to develop computational solution
A3	Industry standards for software confirmation, operation and testing
A4	Recognition of professional considerations involved in the sustainable exploitation of computer technology and is guided by the adoption of appropriate professional, ethical and legal practices.
A5	Working in collaborative teams, partnerships and industry networks
A6	Demonstrate comprehensive, detailed, state-of-the-art knowledge of the specialist area (development, Professional Issues and Professional Practice) covered by the programme within the context of the broader discipline of Computer Science. :
A7	Demonstrate knowledge of research methodology appropriate to this level of work.
A8	Demonstrate clear and confident understanding of the theoretical and empirical limits and boundaries of the specialist area, and of the range of methods of study and types of judgements employed by advanced practitioners.
A9	Utilise information resources and demonstrate how to access these to obtain state-of-the-art knowledge of current computer systems technology.
A10	Demonstrate a sufficiently detailed knowledge of research methods appropriate specifically to their 'Masters' advanced independent-study project, together with detailed knowledge of the particular area in which the project is carried out.

A11	Demonstrate clear and confident understanding of appropriate research methodology and detailed understanding of the particular area in which the 'Masters' project is carried out.

B: Intellectual Skills

B1	Identify, select and apply appropriate computational system development models and processes
B2	Develop cognitive skills of critical thinking, analysis and synthesis
B3	Select and apply suitable software development models and processes
B4	Apply industrial standards to software performance, interoperability and evaluation.
B5	Critically appraise the environment, industry and work place; identifying opportunities and threats.
B6	Application: Work autonomously or with minimal guidance where appropriate, carry out confident and accurate selection and application of principles and procedures appropriate to the resolution of a range of situations and professional problems associated with the specialist area(s) covered by the programme.
B7	Analysis: Work autonomously or with minimal guidance where appropriate, identify and classify principles and ideas in contemporary information sources and situations to professional standards; analyse rigorously, effectively, critically and creatively; cope with complexity.
B8	Synthesis: Work autonomously or with minimal guidance where appropriate, bring together facts/ideas/elements in support of an argument or case presented to professional standards; confidently evolve alternative solutions and concepts.
B9	Evaluation: Work autonomously or with minimal guidance where appropriate, confidently integrate theory with professional/vocational practice; evaluate theories, processes, solutions and outcomes critically and effectively; use the evaluations of others critically, reflectively and constructively.
B10	Problem-Solving: Work autonomously or with minimal guidance where appropriate, identify, define and resolve a range of problems associated with the specialist areas covered by the programme, work to professional standards.
B11	Application: Demonstrate mastery of the principles, techniques and procedures associated with the advanced independent-study project carried out during the 'Masters' stage, including the ability to work effectively from information provided , with little or no guidance.
B12	Analysis: Demonstrate mastery of the analytical skills associated with the 'Masters' stage project, again working autonomously or with minimal guidance where appropriate.
B13	Synthesis: Demonstrate the full range of skills needed to plan and manage a 'Masters'-level project and produce a report/dissertation/thesis or other suitable research output on same working to a detailed specification and to professional standards.
B14	Evaluation: Demonstrate the full range of evaluative skills associated with the 'Masters' stage project, including the effective exercise of judgement based on incomplete and/or contradictory information.
B15	Problem-Solving: Demonstrate professional competence in participating in the identification of a suitable 'Masters' project task and seeking a satisfactory solution that meets the specific requirements of the problem.

C: Subject Skills	
C1	Utilise appropriate research methods for presentation, analysis and interpretation of both qualitative and quantitative data, relevant to the discipline.
C2	Work collaboratively in teams and with potential partners in industry.
C3	Make effective use of a range of theories, techniques, programming languages, operating systems, design support tools and development environments
C4	Specify, design, implement, test and document a computer-based system
C5	Work as a member of a development team, contributing to the planning and execution of a shared design and implementation task
C6	Propose, plan, undertake and report a self-directed individual programme of investigation, design and implementation
C7	Undertake a significant computing related thesis which involves an analytical, rigorous and critical approach to problem identification, solution and evaluation;
C8	Synthesise the knowledge, skills and theories from the computing areas covered by the programme in order to solve a complex problem that may require the integration of different computing techniques and / or technologies

D: Practical, professional and employability skills

D1	Written communication skills: Research, analyse and interpret information from a variety of sources and synthesise and communicate ideas effectively both orally and in writing
D2	Numeracy
D3	Multidisciplinary teamwork skills: actively participate in groups and also be capable of independent work.
D4	Information and communications technology skills
D5	Cognitive skills: Critically assess the relevance and importance of ideas of others
D6	Managing own learning: evaluate own performance and working standards and manage own learning and continuing professional development and develop lifelong learning skills
D7	Communication and Presentation Skills: Engage effectively in a range of independent roles; debate in a confident, professional manner; produce detailed critiques and coherent project reports to professional standards; give confident, high-quality oral and other presentations in a wide range of contexts appropriate to the specialist area(s) covered by the programme.
D8	Numeracy: Practise and demonstrate professional competence in the full range of numerical/mathematical skills associated with the specialist area(s) covered by the programme.
D9	IT Skills: Practise and demonstrate professional competence in the full range of IT skills associated with the specialist area(s) covered by the programme.
D10	Learning Skills: Work autonomously or with minimal guidance where appropriate, directing and managing own learning using the full range of resources and study techniques appropriate to the specialist area(s) covered by the programme.
D11	Interactive and Group Skills: Interact confidently and effectively within a range of learning and professional groups, as appropriate to the specialist area(s) covered by the programme; demonstrate appropriate negotiating, role, leadership and group-support skills to professional standards.
D12	Communication and Presentation Skills: Produce a detailed, professional research report/dissertation/thesis or other suitable research output to the specification laid down for the advanced independent-study project; present and defend this against in-depth examination in an appropriate live context.
D13	Numeracy: Demonstrate mastery of the specialist numerical/mathematical skills associated with the particular area in which the 'Masters' stage advanced

	independent-study project is carried out, including appropriate data analysis/statistical skills.
D14	IT Skills: Demonstrate mastery of the specialist IT skills required to carry out the 'Masters' stage project, including search skills, data-analysis skills, data-presentation skills and document-production skills.
D15	Learning Skills: Work autonomously or with minimal guidance where appropriate, direct and manage own development of mastery of the various research-methodology skills associated with the 'Masters' stage project.
D16	Interactive and Group Skills: Demonstrate the various skills required to work effectively with a research supervisor and with any other support staff

CURRICULUM MATRICES

MComp Computing

L	Module Title	Core/Opt	Knowledge and understanding, intellectual skills, subject skills, and practical, professional and employability skills																		
			A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	C1	C2	C3	D1	D2	D3	D4	D5	D6
L4	Professional Development in Computing: Information Engineering	C				X			X			X				X		X	X	X	X
	Problem Solving with Programming	C	X	X	X			X	X	X					X		X		X		X
	Web Technologies	C	X	X	X	X		X	X	X	X				X	X			X	X	X
	Managing Data	C	X	X	X			X	X	X	X					X	X		X		
	Computer Systems	C	X		X	X		X	X		X	X				X	X		X	X	
	Level 4 Option	O																			
	Module Title	Core/Opt	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	C1	C2	C3	D1	D2	D3	D4	D5	D6
L5	Group Project Design	C	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Group Project Implementation	C	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Responsible Computing	C	X	X	X	X	X	X	X			X	X			X	X		X	X	X
	Human Computer Relationships	C	X	X		X		X	X	X	X			X		X	X		X	X	
	Applied Programming	C	X	X	X			X	X	X	X					X	X	X	X	X	
	Level 5 Option	O																			

	Module Title	Core/Opt	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	C1	C2	C3	D1	D2	D3	D4	D5	D6
	IT Project Management	C	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X	X
L6	Distributed Data	C	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X	X
	21st Century Computing	C	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Project	C	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X	X

Module Title		Post Graduate Study and Research Methods	Future and Emerging Technology	Commercial Website Design & Development	Human Factors Engineering	Dissertation
	A6	×	×	×	×	
	A7	×	×		×	
	A8			×	×	
	A9	×	×			
	A10	×	×			×
	A11	×			×	×
	B6	×	×	×	×	
	B7	×	×	×	×	
Level	B8	×	×	×	×	
	B9	×	×		×	
7	B10			×	×	
	B11					×
	B12					×
	B13					×
	B14					×
	B15					×
	C3			×		
	C4			×	×	
	C5		×	×		

	C6	✕		✕	✕	
	C7					✕
	C8					✕
	D7	✕	✕	✕	✕	✕
	D8	✕		✕	✕	✕
	D9	✕	✕	✕	✕	✕
	D10	✕	✕	✕	✕	✕
	D11		✕	✕		✕
	D12	✕	✕	✕	✕	✕
	D13	✕		✕	✕	✕
	D14	✕	✕	✕	✕	✕
	D15	✕	✕	✕	✕	✕
	D16	✕	✕	✕		

MComp Computer Science

	Module Title	Core/Opt	Knowledge and understanding, intellectual skills, subject skills, and practical, professional and employability skills																	
			A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	C1	C2	C3	D1	D2	D3	D4	D5	D6
L4	Professional Development	C				X			X			X					X		X	X	X
	Problem Solving with Programming	C	X	X	X			X	X	X					X		X		X		X
	Computational Thinking	C	X					X	X						X	X	X	X		X	X	
	Managing Data	C	X	X	X			X	X	X	X					X	X		X		
	Computer Systems	C	X		X	X		X	X		X	X				X	X		X	X	
	SIM4	O																			
	Module Title	Core/Opt	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	C1	C2	C3	D1	D2	D3	D4	D5	D6
L5	Group Project Design	C	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Group Project Implementation	C	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Artificial Intelligence	C	X	X				X	X	X				X		X	X	X		X	
	Responsible Computing	C	X	X	X	X	X	X	X				X	X		X	X			X	X	X
	Applied Programming	C	X	X	X			X	X	X	X					X	X	X		X	X	
	SIM5	O																			
	Module Title	Core/Opt	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	C1	C2	C3	D1	D2	D3	D4	D5	D6
L6	IT Project Management	C	X	X	X	X		X	X	X	X	X	X			X	X	X	X	X	X	X
	Singularities and Society	C	X	X	X	X		X	X			X	X			X	X	X	X	X	X	X

Distributed Data	C	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X	X
21st Century Computing	C	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Project	C	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X	X

Module Title		Post Graduate Study and Research Methods	Future and Emerging Technology	Commercial Website Design & Development	Internet and Mobile Application Development	Dissertation
Level 7	A6	✕	✕	✕	✕	
	A7	✕	✕			
	A8			✕	✕	
	A9	✕	✕		✕	
	A10	✕	✕			✕
	A11	✕				✕
	B6	✕	✕	✕	✕	
	B7	✕	✕	✕	✕	
	B8	✕	✕	✕		
	B9	✕	✕		✕	
	B10			✕	✕	
	B11					✕
	B12					✕
	B13					✕
	B14					✕
	B15					✕
	C3			✕	✕	
	C4			✕	✕	
	C5		✕	✕	✕	
	C6	✕		✕	✕	
	C7					✕
	C8					✕
	D7	✕	✕	✕	✕	✕

	Col1	Col2	Col3	Col4	Col5
D8	×		×	×	×
D9	×	×	×	×	×
D10	×	×	×	×	×
D11		×	×	×	×
D12	×	×	×	×	×
D13	×		×		×
D14	×	×	×	×	×
D15	×	×	×	×	×
D16	×	×	×	×	

MComp Computer Networks & Security

	Module Title	Core/Opt	Knowledge and understanding, intellectual skills, subject skills, and practical, professional and employability skills																		
			A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	C1	C2	C3	D1	D2	D3	D4	D5	D6
L4	Professional Development in Computing: Information Engineering	C				X			X			X				X			X	X	X
	Problem Solving with Programming	C	X	X	X			X	X	X					X		X		X		X
	Network Technologies	C	X	X	X		X	X	X		X		X	X	X	X	X		X	X	X
	Managing Data	C	X	X	X			X	X	X	X					X	X		X		
	Computer Systems	C	X		X	X		X	X		X	X				X	X		X	X	
	SIM4	O																			
	Module Title	Core/Opt	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	C1	C2	C3	D1	D2	D3	D4	D5	D6
L5	Group Project Design	C	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Group Project Implementation	C	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Responsible Computing	C	X	X	X	X	X	X	X			X	X			X	X			X	X	X
	Data Communications and Networks	C	X	X	X		X	X	X		X		X	X	X	X	X		X	X	X
	Server Technologies	C	X	X	X	X	X	X	X		X		X	X	X	X	X	X	X	X	X
	SIM5	O																			

L6	Module Title	Core/Opt	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	C1	C2	C3	D1	D2	D3	D4	D5	D6
	IT Project Management	C	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X	X
	Network Management	C	X	X	X	X	X	X	X		X		X	X	X	X	X		X	X	X
	Applied Network Security	C	X	X	X	X	X	X	X		X		X	X	X	X	X		X	X	X
	21st Century Computing	C	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Project	C	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X	X

Module Title		Post Graduate Study and Research Methods	Future and Emerging Technology	Network Protocols and Algorithms	Remote Access and Security	Dissertation
	A6			×	×	
	A7	×	×		×	
	A8					
	A9		×	×		
	A10	×			×	
	A11					×
	B6		×	×	×	
	B7	×	×	×	×	
	B8			×	×	
Level 7	B9	×	×	×	×	
	B10					×
	B11					×
	B12					×
	B13					×
	B14					×
	C3			×	×	
	C4	×	×		×	
	C5	×	×	×	×	

C6				×	
C7	×	×	×	×	
C8					×
D7	×	×		×	
D8	×		×	×	
D9	×	×	×	×	
D10	×	×	×		
D11		×		×	
D12			×	×	
D13			×	×	
D14			×	×	
D15	×		×		
D16				×	
D11					×
D12					×
D13					×
D14					×
D15					×

MComp Computer Game Development

	Module Title	Core/ Opt	Knowledge and understanding, intellectual skills, subject skills, and practical, professional and employability skills																			
			A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	C1	C2	C3	D1	D2	D3	D4	D5	D6
L4	Professional Development in Computing: Information Engineering	C				X			X			X				X			X	X	X
	Problem Solving with Programming	C	X	X	X			X	X	X					X		X		X		X
	Digital Media Principles	C		X	X			X		X	X			X					X	X	
	Computing Maths	C		X					X				X			X	X	X		X	
	Computer Systems	C	X		X	X		X	X		X	X				X	X		X	X	
	Interactive Design	C	X	X	X			X	X		X	X		X		X		X	X	X	X
	Module Title	Core/ Opt	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	C1	C2	C3	D1	D2	D3	D4	D5	D6
L5	Group Project Design	C	X	X	X	X	X	X	X	X-	X	X	X	X	X	X	X	X	X	X	X
	Group Project Implementation	C	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Audio Technology for Games	C		X	X	X			X	X			X			X			X	X	
	3D Modelling & Animation	C	X	X	X		X	X		X	X			X					X	X	X
	Internet & Mobile App Development	C		X	X	X		X	X	X	X		X				X		X		X
	Serious Games Technology	C	X	X	X	X	X	X	X		X	X		X				X	X	X	X

	Module Title	Core/Opt	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	C1	C2	C3	D1	D2	D3	D4	D5	D6
L6	Advanced Mobile Development	C		X	X	X		X	X	X	X		X			X	X		X		X
	Advanced 3D Modelling & Animation	C	X	X	X		X	X		X	X			X					X	X	X
	Collaborative Technology	C		X	X	X	X		X	X	X	X		X		X		X	X	X	
	21st Century Computing	C	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Project	C	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X	X

Module Title		Post Graduate Study and Research Methods	Future and Emerging Technology	Mobile Application Development	Advanced Artificial Intelligence	Dissertation
Level 7	A6					
	A7	✕	✕			
	A8					
	A9		✕			
	A10	✕				
	A11					✕
	B6		✕			
	B7	✕	✕			
	B8					
	B9	✕	✕			
	B10					✕
	B11					✕
	B12					✕
	B13					✕

B14					×
C3					
C4	×	×			
C5	×	×			
C6					
C7	×	×			
C8					×
C9					×
D7	×	×			
D8	×				
D9	×	×			
D10	×	×			
D11		×			
D12					
D13					
D14					
D15	×				
D16					
D11					×
D12					×
D13					×
D14					×
D15					×

Learning and teaching strategy used to enable outcomes to be achieved and demonstrated

The Department of Computing has a Learning, Teaching and Assessment implementation plan as part of wider Institute and University developments. This seeks to assist the student to become an independent learner whilst still supporting the students in their transition to higher education. The curriculum is designed to encourage an appreciation for learning. Learning is enriched by appropriate underpinning, current research, industrial applications and the development of transferable skills

Postgraduate teaching focuses on depth of study, and critical awareness and evaluation, in selected areas of current research and advanced scholarship within the academic discipline of Computer Science; while at the same time ensuring a more general all round ability. In addressing these aims, the postgraduate MComp programmes includes material on the theory, design and implementation of systems while at the same time focusing on particular specialist areas of research within the academic discipline.

There are a number of specialist computer labs on the Wrexham campus, including B117, B119 (programming laboratories), B121 laboratory (a Networking laboratory) and L204 (Games laboratory) which teaching is based around These specialist labs offers access to a range of software that is utilised within the modules defined in the programme. Students normally undertake pre-prepared tutorials and work in on this equipment. An additional laboratory is available to enable students studying for the dissertation part of the course to have access to equipment over extended periods.

The pace of delivery and range of syllabus content to be covered at the taught stage requires a combination of teaching and learning strategies to be adopted in most areas of study. Modules are in general divided into 2 types, technical and more general. Technical modules cover the specialised area while the more general modules cover other areas of professional development and research.

In the early stages of each module, problems will be well-defined and limited in scope and scale. At later stages, problems will become less structured (to encourage reflection on problem issues) and open-ended (to give scope to propose and evaluate alternative solution strategies). Case studies are used extensively to integrate study topics and to underline vocational relevance. Coursework assignments are important throughout.

As the programme progresses, students are expected to demonstrate increasing proficiency in use of IT tools and techniques to support production of technical documentation, to enhance oral and written presentations, to aid organisation of personal study material.

It is possible to undertake the Dissertation as a work placement but this isn't the normal mode due to the time constraints of the programme.

Welsh Medium Provision

There is currently no opportunity for any part of the programme to be delivered through the medium of Welsh, but in line with the University's Welsh Language Scheme, students are entitled to submit assessments in Welsh if they so wish. Where a qualified tutor is available, students will then be allocated to a tutor who is able to assess the work in Welsh. At present, the Department does not have enough bilingual tutors or full-time academic staff capable of assessing through the medium of Welsh. Where a need for Welsh medium assessment has been identified and no appropriate Welsh speaking tutor/assessor is available, the written assessment will be translated into English. This translation will be conducted by University qualified translators.

Assessment strategy used to enable outcomes to be achieved and demonstrated

The Department has an agreed Assessment Strategy for all computing programmes which provides a framework for the assessment of students' competence, knowledge and understanding, and the grading of students for progression and the conferring of awards. It allows staff to give feedback to students and to evaluate the effectiveness of their own teaching. This strategy will be closely adhered to in the delivery of the programme and is guided by QAA Code of Practice- Section 6: Assessment of Students, National Qualifications Framework, and Glyndŵr University Assessment Guidelines.

Students will receive formative assessment, particularly during the practical and self-study elements of the programme to ensure they can keep track of their progress and development. This will also be a key factor in ensuring student engagement and retention on the programme of study. In the case of practical assessment, this may be a final summative assessment, so more frequent formative assessment provides academic rigour and increases student awareness and confidence in the subject.

There will be emphasis placed upon students to undertake independent study and research activities, in particular when completing the Dissertation / Project element of the programme. This Dissertation / Project will be facilitated by a traditional summative assessment approach at the culmination of the work, however, there will be extensive use of formative feedback, milestones, and guidance from staff during this, and other, independent-study and research-based assessment undertaken by students. This is common practice for such modes of study and is in-line with the approach taken by postgraduate programmes in other HE institutions.

On submission of the dissertation the supervisor marks the work using a standard mark sheet allocating marks for specified areas. Where appropriate a student may be asked to demonstrate their work to the supervisor and second marker. All dissertations are second marked and if there is a dispute in the mark then it is moderated by a third person. On completion of this process and before the module board the External Examiner comments on all the marking.

Indicative submission dates MComp Computing (Level 7)

Module	Core/ optional	Level/ Credit	Assessment type and weighting	Assessment loading	Approx submission
Post Graduate Study and Research Methods	Core	7/20	50% Coursework 50% Case Study	2,000 words 1,500 words	Week 4 End of tri 1
Human Factors Engineering	Core	7/20	100% Coursework	5,000 words	Week 11
MComp Dissertation	Core	7/20	Proposal	2,000 words	Week 2
Future and Emerging Technologies	Core	7/20	30% Presentation 70% Coursework	20min Presentation + 2,000 words	Week 4-11 End of tri 2

Module	Core/ optional	Level/ Credit	Assessment type and weighting	Assessment loading	Approx submission
Commercial Website Design & Development	Core	7/20	50% Coursework 50% Coursework	2,000 words	Week 9 Week 12
MComp Dissertation	Core	7/40	Dissertation	15,000 words	End of tri 2

Indicative submission dates MComp Computer Science (Level 7)

Module	Core/ optional	Level/ Credit	Assessment type and weighting	Assessment loading	Approx submission
Post Graduate Study and Research Methods	Core	7/20	50% Coursework 50% Case Study	2,000 words 1,500 words	Week 4 End of tri1
Internet and Mobile Application Development	Core	7/20	100% Coursework	4,000 words	End of tri 1
MComp Dissertation	Core	7/20	Proposal	2,000 words	Week 2
Future and Emerging Technologies	Core	7/20	30% Presentation 70% Coursework	20min Presentation + 2,000 words	Week 4-11 End of tri 2
Commercial Website Design & Development	Core	7/20	50% Coursework 50% Coursework	2,000 words	Week 9 Week 12
MComp Dissertation	Core	7/40	Dissertation	15,000 words	End of tri 2

Indicative submission dates MComp Computer Networks & Security (Level 7)

Module	Core/ optional	Level/ Credit	Assessment type and weighting	Assessment loading	Approx submission
Post Graduate Study and Research Methods	Core	7/20	50% Coursework 50% Case Study	2,000 words 1,500 words	Week 4 End of tri 1

Network Protocols and Algorithms	Core	7/20	15% Online theory	1.15 hrs	Week 7
			20% Practical exam	2 hrs	Week 7
			65% Coursework	3,000 words	Week 8
MComp Dissertation	Core	7/20	Proposal	2,000 words	Week 2
Future and Emerging Technologies	Core	7/20	30% Presentation	20min Presentation +	Week 4-11
			70% Coursework	2,000 words	End of tri 2
Remote Access and Security	Core	7/20	100% Coursework	Group	Week 11
MComp Dissertation	Core	7/40	Dissertation	15,000 words	End of tri 2

Indicative submission dates MComp Computer Game Development (Level 7)

Module	Core/ optional	Level/ Credit	Assessment type and weighting	Assessment loading	Approx submission
Post Graduate Study and Research Methods	Core	7/20	50% Coursework	2,000 words	Week 4
			50% Case Study	1,500 words	End of tri 1
Advanced Artificial Intelligence	Core	7/20	50% Coursework	2,000 words	Week 7
			50% Coursework	2,000 words	Week 11
MComp Dissertation	Core	7/20	Proposal	2,000 words	Week 2
Future and Emerging Technologies	Core	7/20	30% Presentation	20min Presentation +	Week 4-11
			70% Coursework	2,000 words	End of tri 2
Mobile Application Development	Core	7/20	50% Coursework	2,000 words	Week 6
			50% Coursework	2,000 words	Week 12
MComp Dissertation	Core	7/40	Dissertation	15,000 words	End of tri 2

Assessment regulations that apply to the programme

The assessment regulations that apply to these programmes are the University's regulations for Integrated Masters.

Programme Management

Programme Team
Prof Vic Grout – Head of Department
Dr. John Davies – Programme Leader (Postgraduate)
John Worden – Programme Leader (Undergraduate)
Dr. Stuart Cunningham
Dr. Rich Picking
Denise Oram
Nathan Roberts
Jason Matthews
Bindu Jose
Stephen Caulder
Richard Hebblewhite
Dr Bo Liu
Nigel Houlden
Richard J Smith
Julie Mayers

Programme Management

The programme will be managed under the auspices of the Institute for Arts, Science and Technology Department of Computing and the programme will develop and operate within the terms of the overall management of curriculum within the Institute.

However, there will be a designated MSc Programme Leader for the MComp programmes who will be responsible for the day-to-day running of the programme, including the following:

- The management and development of curriculum and the course portfolio
- Student tracking and student records
- Collation of assessment data, presentation of data at assessment boards
- Management/co-ordination of overall assessment activities across the programme
- Liaison with external bodies and agencies,
- Quality assurance and annual monitoring, including compilation of the Annual Monitoring Report
- Co-ordination of admissions activities and other recruitment activities, including relevant publicity activities

At module level there is devolved responsibility for the following:

- The maintenance and development of teaching and learning materials for all students enrolled on the module,
- The publishing and updating of module timetables, which shall include a weekly schedule of module sessions and required reading, to be distributed to students at the start of all modules

- The setting, marking and collation of marks for all module assessments and examination papers, including resit assessments, and submission of student results to the Programme Leader
- Tutorial support for students taking the module which they are responsible
- Quality monitoring, including processing of annual student feedback questionnaires and, where appropriate, student feedback for individual modules
- Liaison with part-time members of staff involved in module teaching

Student Feedback

The University has procedures in place for the regular review of its educational provision, including the annual review of both modules and programmes which draw on feedback from such sources as external examiners' reports, student evaluation, student achievement and progression data. In addition, programmes are subject to a programme periodic review (PPR) and re-validation in year 5 that includes external input.

Feedback from students plays a critical part in informing the Department's strategic thinking. It also allows the Department to evaluate how its service provision is viewed by its most important group of stakeholders, its students.

Students can provide feedback in a number of ways:

Staff-Student Consultative Committee – SSCCs, chaired by a member of academic staff from outside the programme, will be held at least once per trimester. The Chair will minute student feedback for action/response by the Programme Leader. Minutes of the SSCCs and the response from the Programme Leader will be posted on the programme pages of Moodle. Each of the MComp programmes will have a representative on the Computing Student Staff Consultative Committee.

Student Evaluation of Module (SEM) – Module Leaders will distribute SEMs at the end of each module. A summary of the analysis of the SEMs, along with any other feedback (e.g. from the student suggestion box), will be passed to the Programme Leader for action/response.

Students submit work in a number of different ways depending on the module being studied Wherever possible Moodle is used for electronic submission and Turnitin to check the similarity score and feedback is given via this interface within 2 weeks. However due to the nature of Computing it is not possible to do this with programming modules and networking modules. As part of the networking modules a number of on-line tests are taken and their score is given immediately and the supervisor can highlight the areas where problems occur. Also practical work in both networking and the programming modules are implemented by getting the student to demonstrate their work, again immediate feedback is given. At the end of a module overall feedback is provided along with a clear indication of what area the student needs, if necessary, resubmit work or what areas were good and which areas can be improved on.

Research and Scholarship underpinning the curriculum

The Department believes that students learn best in a research oriented environment taught by people working at the forefront of their disciplines. The skills and expertise in the Department are augmented by the presence of the Centre for Applied Internet Computing (CAIR) which has now been encompassed into the Creative and Applied Research for the Digital Society (CARDS) research Centre, where staff are researching in the areas of Computer Programming and Software Engineering, Science and Internet Technologies, Mobile Communications, Web systems, Security and Computer Forensics, Computer Graphics, Media Technologies, E-Commerce and business impact. Current research projects include:

- Computer Music and Audio
- Metrics for determining network stability
- Social and Behavioural Algorithms
- Computational mathematics
- Combinatorial optimisation and network algorithms
- Information Systems Failure
- Intelligent user interface design and adaptive tutoring systems
- Games Technology
- Routing algorithms and protocols
- Database optimisation
- Search engines
- Holistic visualisation of distributed knowledge
- Security and security visualization
- Complex decision analysis
- Wireless network optimisation
- Standardisation of reusable interface components
- Computing and Internet Ethics
- e-Learning/Business/Commerce
- Teaching and learning in IT
- Domotics and Remote-Controlled Home Automation Systems
- Document compression and transmission.

The Research Centre - Creative and Applied Research for the Digital Society (CARDS) has taken over the Centre for Applied Internet Research (CAIR) which has built up its activities very impressively over the past four years. The commitment and enthusiasm of the staff is very evident and significant outputs have been achieved over a whole range of activities, covering publications, grant winning, conference organisation, industrial engagement etc.

Significant achievements during the recent past include the very professional organisation of a conference to the highest international standards; the development of a large-scale EU-funded research project, the steady production of conference publications, in addition to a sound proportion of academic journal publications; the setting up of a usability laboratory - a relatively unique facility in Wales; the importing of a substantial new base of specialism in wireless technologies and a success in a radio frequency identification tagging (RFID) project, which is intended to be rapidly grown into an additional research theme. This particular success formed part of an undergraduate student project, emphasising the integration of teaching and research.

Staff on this programme team are very active in undertaking research, scholarship and professional activities, as reflected in an expanding published output, a significant grant-funded research project (and bids for new examples), growing numbers of Knowledge Transfer Partnerships, and the very successful conference series organised within the Research Centre. For their dissertations/theses, students will be expected to investigate cutting-edge technologies, implement and test novel / innovative science or commercial solutions or develop or analyse original computer science applications / techniques. A series of lectures are provided to introduce students to the process and students are encouraged to select their own topic with help from a supervisor. In previous years some excellent publishable work has been produced in particular in the last 3 years in excess of 10 papers have been published based on the dissertation work.

Particular support for learning

Students on the programme will receive the following forms of student support and guidance:

- Admissions. All students on the programme will have the opportunity to discuss their application with staff, and receive appropriate advice and guidance prior to admission. This will include review of expectations of the programme and clarification of workload and requirements.
- Induction. New students on the programme will undergo an induction programme which will provide them with a full introduction to the programme, and will include elements of work on study skills and professional development.
- Student Handbook. All students on the programme will receive a Student Handbook which will contain details and guidance on all aspects of the programme and forms of student support and guidance, programme-based, Department-based and institutional
- Progress Review and Attendance Monitoring. Student attendance will be subject to regular monitoring through registers, and this will be a means of addressing issues of student support. There will also be regular reviews for each student with personal tutors.

Student Support

Every student is allocated a personal tutor in the first weeks of the programme. The personal tutor is someone students can contact to discuss any problems of a non-academic nature. These may relate to special needs or personal problems that may affect the student's academic performance.

Academic problems should first be addressed to the lecturer concerned If the problem is not resolved or it does not relate to a specific module, then the Programme Leader should be contacted A more detailed complaints procedure is given in the Student Handbook

Another forum for discussion is the Staff Student Consultative Committee. Student representatives, who are elected by the students, meet lecturing staff on the programme once a trimester to exchange ideas about the programme. This allows students to communicate their shared concerns in an informal manner, and for the staff to react and respond speedily to address their concerns.

Additional support for International students

There is network of support that is available at many different levels within the University and these combine to provide a supportive framework for the international students. Specifically, this includes three main activities:
- Language provision designed to ensure that the international students have achieved a minimum level of language skills before they embark on their chosen degree programme. This is a six-week pre-sessional intensive English Language for Academic Study course that aims to bring students to an IELTS (International English Language Testing System) level of 6.5 – the standard demanded for entry into master's degree programmes.
- Glyndŵr University offers English language classes alongside studies that improve not only spoken and written English but also academic English. Classes take place weekly and are delivered by the University's English language tutors also t help students to integrate into the life of the local community as well as helping them develop transferable skills such as practical, research and report-writing skills.
- An induction / orientation course that precedes the start of formal teaching and that allows the international students to become familiar with the University and studying at the University whilst at the same time outlining some of the cultural differences that exist between their country of origin and the UK.

Facilities

There are 4 specialist IT labs used for Computing students and in addition, students have access to the University open-access computing labs and other University wide services, including the wireless network.

There is comprehensive Virtual Learning Environment (Moodle) containing a range of advice and guidance. Module lecture notes and programme content are available online through Moodle and it is used for all the modules within the programme. This enables students to gain access to tutorial work and assignments set for the various modules. Many study materials are available via Moodle such as online databases; e-journals and library catalogue information are also available online.

Equality and Diversity

The University has adopted a policy of providing equal opportunities for all its students, staff, applicants and others involved in its work. One aspect of this policy is its intention to prevent, as far as possible, the harassment of one person by another, whether on the basis of gender, sexual orientation, sexuality, race or ethnic origin, religion, disability, or any other personal attributes or views held by the person harassed.

As part of the University's Disability Policy, students with a physical disability or learning difference are encouraged to contact the University Disability Adviser to ensure their needs are acknowledged formally. The outcome of such an assessment could result, for example, in additional time being allowed for examinations, or the provision of further learning support.