Wrexham glyndŵr UNIVERSITY

PROGRAMME VALIDATION DOCUMENT

MSc Affective Computing

PG Dip Affective Computing
PG Cert Computing

Full & part time

Implementation dates:

Level 7 Sept-2017

The following University Award Regulations apply to this programme

- ☐ Generic award Regulations
- ✓ Regulations for Taught Masters Degrees (Incorporating Pre-Masters programme)
- ☐ Regulations for Integrated Masters Degrees
- ☐ Regulations for Masters of Research
- ☐ Regulations for Professional Graduate Certificate in Education
- ☐ Regulations for Certificate in Education
- ☐ Regulations for Graduate Diploma Graduate Certificate
- ☐ Regulations for Bachelor Degrees, Diplomas, Certificates and Foundation Degrees
- ☐ Regulations for International Foundation Diploma and Foundation Diploma in English for University Study
- ☐ Regulations for BTEC Higher National Qualifications
- ☐ Regulations for: Glyndŵr University Certificate of Attendance Glyndŵr University Certificate of Continuing Education Glyndŵr University Professional Certificate

Office use only	
Date of validation:	29 November 2016
Date of Academic Board approval:	17 January 2017

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PART ONE PROGRAMME PROPOSAL CHECKLIST

This checklist is to be submitted with a full programme specification and module specifications

1	Has the proposal been granted initial approval to proceed to validation by the School Board?	YES	When?	28/10/2016
2	Have the programme's intended learning outcomes (at both programme and module level) been checked against the National Level Descriptors in Part A of the QAA's Quality Code and CQFW?	YES		
3	When and how is this demonstrated? FHEQ and CQFW level descriptors for MSc programmes have informed the development of the intended programme and module outcomes			
4	If appropriate, is the programme aligned with the relevant QAA subject benchmark statements? Please provide detail in Part Two, Q8.	YES		
5	When and how is this demonstrated? Mapping Exercise as part of devising the Programme Learning Outcomes			
6	For programmes proposed for delivery wholly or partly on-line, has the team given consideration to the specific approval criteria and guidance provided for "Additional Criteria: Distance learning or e-learning" to be found in the Validation chapter of the AQH. Guidance can be provided by appropriately experienced academic colleagues; please contact the Academic Quality and Standards Unit for identification of appropriate colleagues	N/A		
7	If appropriate, has the programme been developed in line with PSRB requirements?	N/A		
8	When and how is this demonstrated? N/A			
9	Indicate how employers and other stakeholders have informed the development of the proposal The proposal responds to evidence of market demand, identified by The Tech Partnership, for increased numbers of IT specialists. Whilst focused upon Affective Computing, the programme will also produce graduates with a range of specialist skills in working with big data, the internet of things, artificial intelligence, human computer interaction, and with highly transferable research, planning, and IT strategy skills.			
10	Does the programme comply fully with the University's Academic Regulations?	YES		
11	If no, please confirm that a derogation proposal form is attached to this document (available from AQSU homepage)	NO		
12	If required, specify derogations (and the rationale) for which approval has been sought or is being sought SQC			

13 For proposals for Bachelor degree programmes, please confirm how the programme will address borderline classifications, as discussed in the Academic Regulations 2015/16, Award Regulations, Regulations for Bachelor Degrees, Diplomas, Certificates and Foundation Degrees, regulation 14.3.

14 For proposals for Taught Masters provision, please identify any modules (other than Research Methods) which are NOT eligible for trailing into Part Two as discussed in the Academic Regulations 2015/16, Award Regulations, Regulations for Taught Masters Degrees (Incorporating Pre-Masters programme), regulation 37

15 Does the programme comply fully with the University Modular Curriculum Framework (Appendix 11 of Validation Chapter)? YES

16 If not, specify exceptions required from the curriculum framework and the rationale for this

17 If the proposal under consideration is intended to replace current provision, the programme team must be explicit regarding the management of students enrolled on the current provision. Please indicate which scenario applies to these students.

Please refer to the Academic Quality Handbook's validation chapter at https://glynfo.glyndwr.ac.uk/course/view.php?id=132&section=4, Appendix 5: Protocol for transferring students onto replacement provision

☐ The programme being replaced will be phased out over coming years

☐ The new provision will be introduced for both Level 4 and 5 cohorts in the coming year

☐ The existing programme is closed and the new programme will start at all levels the following academic year

18 Where the module title, credit value or method of assessment of an existing module is to be changed as a result of this validation, please list the module code, title and proposed change. If this module is shared across programmes, please indicate that programme leader, student and external support has been received and evidenced.

Module Code	Module Title	Proposed change	Module shared across programmes?	Evidence of support?

PART TWO PROGRAMME SPECIFICATON

1	**Awarding body**
	Glyndŵr University
2	**Teaching institution**
	Glyndŵr University
3	**Award title**
	MSc Affective Computing
4	**Final awards available**
	Postgraduate Diploma Affective Computing Postgraduate Certificate Computing
5	**Professional, Statutory or Regulatory Body (PSRB) accreditation**
	N/A
	Please list any PSRBs associated with the proposal
	None.
	Accreditation available
	N/A
	Please add details of any conditions that may affect accreditation (eg is it dependent on choices made by a student?)
	N/A
6	JACS3 **code**
	I140 : Human-Computer Interaction
7	UCAS **code**
8	**Relevant QAA subject benchmark statement/s**
	Computing (2007) Master's degrees in Computing (2011) Master's degree characteristics (2015)
9	**Other external and internal reference points used to inform the programme outcomes**
	None.
10	**Mode of study**
	Full & part time
11	**Language of study**
	English

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Date of revision:	*Enter the date of any subsequent revisions*
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12 Criteria for admission to the programme

Standard entry criteria

Guidance – Please check entry requirements are in accordance with the University's admissions policy http://www.glyndwr.ac.uk/en/media/Media,49536,en.pdf

UK entry qualifications

Applicants for postgraduate degrees require a minimum of 2:2 class undergraduate degree

International entry qualifications

Qualifications outlined on the National Academic Recognition and Information Centre (NARIC) as equivalent to the above UK entry qualification.

Programme specific requirements

Applicants should be competent computer programmers. This will be assessed based upon previous academic and/or work experience and discussed at interview, which all applicants are invited to attend. If appropriate, this may be done by requesting applicants to undertake a computer-based programming ability assessment.

Non-standard entry criteria
(e.g. industry experience)

Applicants with significant industry or professional experience will be treated on a case-by-case basis and invited for a discussion/interview with a member of the programme team.

English language requirements

The University's English language requirements are set out at http://www.glyndwr.ac.uk/en/Howtoapply/Readytoapply/

☐ **Undergraduate**

In addition to the academic entry requirements, all applicants whose first language is not English or Welsh must demonstrate English language proficiency.

European students are able to provide this evidence in a number of ways (please see http://www.glyndwr.ac.uk/en/Europeanstudents/entryrequirements/ for details), including IELTS, with an overall score of 6.0 and no component below 5.5.

International students require a UKVI Approved Secure English Language Test (SELT), achieving an overall score of 6.0 with no component below 5.5 (please see http://www.glyndwr.ac.uk/en/Internationalstudents/EntryandEnglishLanguageRequirements/ for details). If arranging a test, applicants must ensure they book an 'IELTS for UKVI' test. For further information see: http://takeielts.britishcouncil.org/ielts-ukvi/book-ielts-ukvi. Applicants are asked to note that only an *IELTS for UKVI* test result will be accepted.

✓ **Postgraduate**

In addition to the academic entry requirements, all applicants whose first language is not English or Welsh must demonstrate English language proficiency.

European students are able to provide this evidence in a number of ways (please see http://www.glyndwr.ac.uk/en/Europeanstudents/entryrequirements/ for details), including IELTS, with an overall score of 6.5 and no component below 6.0.

International students require a UKVI Approved Secure English Language Test (SELT), achieving an overall score of 6.5 with no component below 6.0 (please see http://www.glyndwr.ac.uk/en/Internationalstudents/EntryandEnglishLanguageRequirements/ for details). If arranging a test, applicants must ensure they book an 'IELTS for UKVI' test. For further information see: http://takeielts.britishcouncil.org/ielts-ukvi/book-ielts-ukvi. Applicants are asked to note that only an *IELTS for UKVI* test result will be accepted.

13 Recognition of Prior (Experiential) Learning

Programme specific requirements

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

14 Aims of the programme

The MSc Affective Computing is intended to provide students with the opportunity to build upon, and expand, their existing knowledge and skills in the field of computing and technology. The programme is particularly focused upon equipping students to be able to design, implement and evaluate affective computing systems. In doing so, students will be able to develop high-level, interactive applications, that respond and engage with their user(s) on an emotional level. Such applications have the potential of heightening and enhancing the user experience and usability of computers and technology, as well as having very specific applications in specialist user scenarios, such as in healthcare and assisted-living.

Specifically, the programme aims to provide students with the following:

- Specialist knowledge and understanding of affective computing, including models of human emotion, usability, artificial intelligence, and emergent developments in computing;
- Technical expertise in the design, implementation and evaluation of affective computing systems and technologies;
- Practical experience of working with a range of sensors, the Internet of Things (IoT), Big Data, and the implementation of affective computing systems;
- The ability to critically appraise and disseminate research results;
- A sound basis for further research and / or professional development.

The module diet of the programme provides a vehicle for these aims and intentions to be met and will equip students with a mixture of theoretical and practical abilities that will allow them to enhance their current skillset into this emerging field. In addition to the specialist content, students will develop transferable skills in working consistently at a professional level and in handling, and responding to, complex, large-scale, information that is focused upon current research and industry developments in computing.

15 Distinctive features of the programme

The field of Affective Computing was established in the early 2000's and is only now beginning to receive mainstream attention. The field has been developing slowly in academic and industrial research laboratories around the world but has, until now,

been relatively difficult to find a programme where it is expressly taught. As such, this programme is a unique offering in the UK and worldwide marketplace.

Affective computing is an exciting, multi-disciplinary strand of computing that addresses how computers, and other technologies, will become more interactive and efficient by recognising, and responding to, human emotions. This makes it applicable to a wide variety of real world computing situations, ranging from the entertainment and creative sectors to health informatics and smart homes. As such, the programme is accessible to students from a wide range of computing and technology backgrounds (including, but not limited to: web development; computing; computer science; artificial intelligence; multimedia; computer games; human-computer interaction; software engineering; and creative technologies) looking to specialise or integrate affective computing principles into their field.

This course offers students a unique opportunity to be at the forefront of intelligent, emotionally interactive technologies as they come to fruition in the industry and marketplace. Utilising emergent technologies, such as the Internet of Things (IoT), wearable and mobile devices, and Big Data, the course combines theory and practice, as it prepares students to seize the opportunity to create innovative computers that are powerful, customisable, adaptive, and responsive to their users, whilst being sensitive to societal and ethical concerns such as privacy and security.

Ultimately, affective computing can provide a way for humans to seamlessly filter out a lot of the information they are presently swamped with and to get to the services and systems that are right for them. The programme brings together a range of modules that will equip students to deepen and integrate their skills to develop affective computing solutions, facilitated by the acquisition and application of theory through practical sessions and problem-based learning.

It is anticipated the graduates will go into careers in the computing and technology fields of: interaction design, user experience evaluation, software development, academic study at doctoral (MPhil/PhD) level, and industrial research positions, as well as new roles that are likely to emerge in the industry, which are focused around the design, development and implementation of affective computing systems. Additionally, as affective computing's impact spreads in the marketplace, it is expected that all conventional software development, programming, web development, and interaction design jobs will have to adapt to incorporate affective computing and associated technologies as a core competency.

16 Programme structure narrative

The programme consist of two parts: part one, which consists of the 120 credits of taught modules; and part two, which is the 60 credit Dissertation. The Dissertation pursued will complement the prior taught modules by focussing upon a theme or topic from the affective computing discipline. There are 5 modules (including the Dissertation) that are shared modules between this programme and the University's other Computing programmes, which makes the delivery extremely efficient and provides students with the opportunity to engage with a wider, more diverse, peer group.

The programme is offered in full-time and part-time modes of attendance. Students will typically be expected to attend the University for two or three days a week, full-time, and for one or two days a week, when studying part-time, in addition to studying

in their own time.

An exit award from MSc Affective Computing is Postgraduate Certificate (PG Cert) Computing and is available to students who successfully complete 60 credits, but who find they are unable or choose not to continue with the programme. The Postgraduate Diploma (PG Dip) exit award is Postgraduate Diploma Affective Computing and this is available to students who successfully complete 120 credits of Part One, and they are unable or choose not to continue with the programme.

Full-time students will pursue the programme over one calendar year. In the first semester and second semesters, students will need to complete 60 credits in order for students to exit with a PG Cert Computing award students successfully completing 120 credits would be eligible to exit with a PG Dip Affective Computing award. Students then eligible to do so will proceed to part two of the programme, where they will pursue the 60 credit Dissertation, submitting it at the next assessment opportunity.

In part-time mode, students will engage with the programme for a period of approximately two-and-a-half years. The first year will consist of two taught semesters, where students will study effectively 40 credits per semester (since the 40 credit Affective Computing module is delivered over both semesters). At the end of this period, students will have the ability to exit the programme and receive a PG Cert Computing award, if they have successfully completed all modules to this point. In the second year, students will study 20 credits per semester. At the end of this period, students have the ability to exit the programme with the PG Dip Affective Computing award, if they have successfully completed all modules to this point. Those continuing will, during the subsequent summer and first semester period, pursue the 60 credit Dissertation, normally submitting this in February of the following calendar year to obtain the MSc Affective Computing.

17 Programme structure diagram

Full-time Mode

	Level 7					
Semester 1	Mod title	Postgraduate Study and Research Methods	Mod title	Advanced Artificial Intelligence	Mod title	Affective Computing
	Mod code	COMM50	Mod code	COM722		
	New/Existing	Existing	New/Existing	Existing	Mod code	COMM57
	Credit value	20	Credit value	20		
	Core/Option	Core	Core/Option	Core	New/Existing	New
	Mod leader	Dr. Stuart Cunningham	Mod leader	Dr. Bo Liu		
Semester 2	Mod title	Future and Emerging Technologies	Mod title	Human Factors Engineering	Credit value	40
	Mod code	COMM51	Mod code	COM721		
	New/Existing	Existing	New/Existing	Existing	Core/Option	Core
	Credit value	20	Credit value	20		
	Core/Option	Core	Core/Option	Core	Mod leader	Dr. Stuart Cunningham
	Mod leader	Prof. Vic Grout	Mod leader	Prof. Richard Picking		

NB: The Affective Computing module runs over both semesters.

Summer period	Mod title	Dissertation
	Mod code	COMM56
	New/Existing	Existing
	Credit value	60
	Core/Option	Core
	Mod leader	Prof. Richard Picking

Part-time Mode

	Level 7			
Semester 1 (Year 1)	Mod title	Postgraduate Study and Research Methods	Mod title	Affective Computing
	Mod code	COMM50		
	New/Existing	Existing	Mod code	COMM57
	Credit value	20		
	Core/Option	Core	New/Existing	New
	Mod leader	Dr. Stuart Cunningham		
Semester 2 (Year 1)	Mod title	Human Factors Engineering	Credit value	40
	Mod code	COM721		
	New/Existing	Existing	Core/Option	Core
	Credit value	20		
	Core/Option	Core	Mod leader	Dr. Stuart Cunningham
	Mod leader	Prof. Richard Picking		

NB: The Affective Computing module runs over both semesters in Year 1.

	Level 7		
Semester 1 (Year 2)	Mod title	Advanced Artificial Intelligence	
	Mod code	COM722	
	New/Existing	Existing	
	Credit value	20	
	Core/Option	Core	
	Mod leader	Dr. Bo Liu	

Semester 2 (Year 2)	Mod title	Future and Emerging Technologies
	Mod code	COMM51
	New/Existing	Existing
	Credit value	20
	Core/Option	Core
	Mod leader	Prof. Vic Grout

	Level 7	
Summer (Year 2) and Semester 1 (Year 3)	Mod title	Dissertation
	Mod code	COMM56
	New/Existing	Existing
	Credit value	60
	Core/Option	Core
	Mod leader	Prof. Richard Picking

18 Intended learning outcomes of the programme

	Knowledge and understanding
Level 7 – PG Cert Computing	
A1	Display a mastery of the multifaceted theories underpinning human emotion, how these are applied in devising affective computing systems, and the relation between affective computing the broader domain of computer science
A2	Make professional judgements in the selection of technologies or processes for complex and dynamic scenarios
Level 7 – PG Dip Affective Computing	
A3	Compare and contrast the theories behind various complex artificial intelligence systems
A4	Give a critical account of current and emerging developments in affective computing
A5	Provide a deep account of usability principles, processes, and evaluations
Level 7 – MSc Affective Computing	
A6	Evidence deep comprehension of specialist applications for affective computing systems and recognise the boundaries of knowledge in this domain
A7	Demonstrate a sufficiently detailed knowledge of research methods appropriate specifically to their advanced independent-study dissertation/project, together with detailed knowledge of the particular area in which the project is carried out

	Intellectual skills
Level 7 – PG Cert Computing	
B1	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 within the specialist area of affective computing
B2	Identify and classify principles, ideas in contemporary information sources, and situations to professional standards; analyse rigorously, effectively, critically and creatively; cope with complexity
Level 7 – PG Dip Affective Computing	
B3	Synthesise and predict the future development of current and emerging technologies in the field of affective computing, being mindful of external factors
B4	Devise and organise intelligent systems in response to a range of technological and practical constraints
B5	Design and appraise a range of user-centred investigations to model and evaluate interactive computer systems
Level 7 – MSc Affective Computing	
B6	Utilise complex, often contradictory, resources and demonstrate how to access these to obtain state-of-the-art knowledge of current affective computing systems
B7	Evaluate methods, and plan for, a complex, self-led, investigation in response to a recognised problem or gap in knowledge

Subject Skills	
Level 7 – PG Cert Computing	
C1	Work with a range of computer hardware, software, and networked devices to implement an affective computing system
C2	Be effective in the acquisition and analysis of data, from a range of sources
Level 7 – PG Dip Affective Computing	
C3	Make effective use of a range of theories and techniques applicable to affective computing scenarios
C4	Assimilate and integrate emerging developments in affective computing into their own work
C5	Specify, design, implement, test and document an affective computing system
Level 7 – MSc Affective Computing	
C6	Undertake a significant affective computing related thesis which involves an analytical, rigorous and critical approach to problem identification, solution and evaluation
C7	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 affective computing techniques and / or technologies

Practical, professional and employability skills	
Level 7 – PG Cert Computing	
D1	Display a mastery of working with a range of information sources and be able to objectively arrange these in a holistic manner
D2	Professionally and efficiently operate a range of IT software, specialist computing applications, and configure a range of hardware devices
Level 7 – PG Dip Affective Computing	
D3	Effectively and proficiently work with stakeholders in designing IT and computer systems in response to their needs and demands
D4	Make critical decisions regarding technology adoption and success, based upon technological, societal, ethical, and market information
D5	Model and apply computational solutions in response to large scale problems
Level 7 – MSc Affective Computing	
D6	Conduct and control a piece of research or investigation and professionally present the outcomes in a succinct and reflexive manner
D7	Carry out a large-scale, independent project and provide detailed and reflective analysis of its efficacy and value

19 Curriculum matrix

For successful completion of PG Cert Computing, students will achieve the following learning outcomes:

	Module Title	Core or option?	A1	A2	A3	A4	A5	A6	A7	B1	B2	B3	B4	B5	B6	B7
Level 7	*Postgraduate Study and Research Methods*	Core	☐	■	☐	☐	☐	☐	☐	☐	■	☐	☐	☐	☐	☐
	Human Factors Engineering	Core	☐	■	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	Affective Computing	Core	■	■	☐	☐	☐	☐	☐	■	☐	☐	☐	☐	☐	☐
	Advanced Artificial Intelligence	Core	☐	■	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	Future and Emerging Technologies	Core	☐	☐	☐	☐	☐	☐	☐	☐	■	☐	☐	☐	☐	☐

	Module Title	Core or option?	C1	C2	C3	C4	C5	C6	C7	D1	D2	D3	D4	D5	D6	D7
Level 7	*Postgraduate Study and Research Methods*	Core	☐	■	☐	☐	☐	☐	☐	■	☐	☐	☐	☐	☐	☐
	Human Factors Engineering	Core	☐	■	☐	☐	☐	☐	☐	☐	■	☐	☐	☐	☐	☐
	Affective Computing	Core	■	■	☐	☐	☐	☐	☐	☐	■	☐	☐	☐	☐	☐
	Advanced Artificial Intelligence	Core	☐	■	☐	☐	☐	☐	☐	☐	■	☐	☐	☐	☐	☐
	Future and Emerging Technologies	Core	☐	☐	☐	☐	☐	☐	☐	■	☐	☐	☐	☐	☐	☐

For successful completion of PG Dip Affective Computing, students will achieve the following learning outcomes:

	Module Title	*Core or option?*	***A1***	***A2***	***A3***	***A4***	***A5***	***A6***	***A7***	***B1***	***B2***	***B3***	***B4***	***B5***	***B6***	***B7***
Level 7	*Postgraduate Study and Research Methods*	Core	☐	■	☐	☐	☐	☐	☐	☐	■	☐	☐	☐	☐	☐
	Human Factors Engineering	Core	☐	■	☐	☐	■	☐	☐	☐	☐	☐	☐	■	☐	☐
	Affective Computing	Core	■	■	☐	☐	☐	☐	☐	■	☐	☐	■	■	☐	☐
	Advanced Artificial Intelligence	Core	☐	■	■	☐	☐	☐	☐	☐	☐	☐	■	☐	☐	☐
	Future and Emerging Technologies	Core	☐	☐	☐	■	☐	☐	☐	☐	■	■	☐	☐	☐	☐

	Module Title	*Core or option?*	***C1***	***C2***	***C3***	***C4***	***C5***	***C6***	***C7***	***D1***	***D2***	***D3***	***D4***	***D5***	***D6***	***D7***
Level 7	*Postgraduate Study and Research Methods*	Core	☐	■	☐	☐	☐	☐	☐	■	☐	☐	☐	☐	☐	☐
	Human Factors Engineering	Core	☐	■	■	☐	☐	☐	☐	☐	■	■	☐	☐	☐	☐
	Affective Computing	Core	■	■	■	■	■	☐	☐	☐	■	☐	☐	■	☐	☐
	Advanced Artificial Intelligence	Core	☐	■	■	☐	☐	☐	☐	☐	■	☐	☐	■	☐	☐
	Future and Emerging Technologies	Core	☐	☐	☐	■	☐	☐	☐	■	☐	☐	■	☐	☐	☐

For successful completion of MSc Affective Computing, students will achieve the following learning outcomes:

	Module Title	Core or option?	A1	A2	A3	A4	A5	A6	A7	B1	B2	B3	B4	B5	B6	B7
Level 7	Postgraduate Study and Research Methods	Core	☐	■	☐	☐	☐	☐	☐	☐	■	☐	☐	☐	☐	☐
	Human Factors Engineering	Core	☐	■	☐	☐	■	☐	☐	☐	☐	☐	☐	■	☐	☐
	Affective Computing	Core	■	■	☐	☐	☐	☐	☐	■	☐	☐	■	■	☐	☐
	Advanced Artificial Intelligence	Core	☐	■	■	☐	☐	☐	☐	☐	☐	☐	■	☐	☐	☐
	Future and Emerging Technologies	Core	☐	☐	☐	■	☐	☐	☐	☐	■	■	☐	☐	☐	☐
	Dissertation	Core	■	■	☐	■	■	■	■	■	■	■	☐	☐	■	■

	Module Title	Core or option?	C1	C2	C3	C4	C5	C6	C7	D1	D2	D3	D4	D5	D6	D7
Level 7	Postgraduate Study and Research Methods	Core	☐	■	☐	☐	☐	☐	☐	■	☐	☐	☐	☐	☐	☐
	Human Factors Engineering	Core	☐	■	■	☐	☐	☐	☐	☐	■	■	☐	☐	☐	☐
	Affective Computing	Core	■	■	■	■	■	☐	☐	☐	■	☐	☐	■	☐	☐
	Advanced Artificial Intelligence	Core	☐	■	■	☐	☐	☐	☐	☐	■	☐	☐	■	☐	☐
	Future and Emerging Technologies	Core	☐	☐	☐	■	☐	☐	☐	■	☐	☐	■	☐	☐	☐
	Dissertation	Core	☐	■	■	■	☐	■	■	■	■	☐	■	☐	■	■

20 Learning and teaching strategy

The MSc Affective Computing will adopt the Computing subject area Learning, Teaching and Assessment strategy. It seeks to assist the student to become an independent learner while still supporting the students in their transition to postgraduate education. The curriculum is designed to encourage an appreciation for learning. Learning is enriched by appropriate underpinnings, current research, industrial applications and the development of transferable skills.

Students on the programme will gain hands-on experience of working with a range of sensors and equipment in building experimental, interactive affective computing systems and learn about the emerging fields of Affective Computing, the Internet of Things (IoT), and Big Data.

The majority of scheduled learning and teaching activities is through attendance at lectures, guest talks, tutorials, and labs. Attendance at external events and field trips are made available and as when they are appropriate and practicable. These modes of contact provide students with the ability to develop and practice the range of learning outcomes associated with the programme, ranging from the theoretical to the practical.

The course provides students with immersion in several distinct subject disciplines that support the design, development, and evaluation of affective computing systems. The course modules cover the practical skills of computing, necessary to build affective, interactive technologies, supported by learning the theories, investigation techniques, and research skills that allow them to work successfully with leading edge, emerging technologies and devise solutions that are fit for purpose.

The majority of Computing provision is located on the Wrexham campus, including teaching rooms, lecture theatres, staff offices, and specialist labs. There are a number of specialist computer labs on the Wrexham campus, including general purpose computing laboratories that support the teaching. These specialist labs offer access to a range of software that is utilised within the modules defined in the programme. Staff in Computing operate an Open Door policy in relation to students, ensuring flexibility and responsiveness in dealing with queries and questions that occur outside of the scheduled teaching hours.

The pace of delivery and range of syllabus content to be covered at the taught stage (part one) requires a combination of teaching and learning strategies to be adopted in most areas of study. Modules are in the main divided into 2 types: technical and general. Technical modules cover the specialised subject areas and expertise pertaining to affective computing, while the more general modules cover other areas of professional development and research methodology.

Technical modules in part one total 80 credits of the programme and are Affective Computing, Advanced Artificial Intelligence, and Human Factors Engineering. These modules provide students with the theoretical and practical skills to design, build and evaluate interactive affective computing systems.

General modules in part one total 40 credits of the programme and are Postgraduate Study and Research Methods and Future and emerging Technologies. These modules aim to develop postgraduate level thinking skills, research capability, information handling, ethical awareness, and futurology skills in students, by focusing

their study of these modules on the field of affective computing.

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 when appropriate 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, and to aid organisation of personal study material.

Part two of the programme is the Dissertation and is an area that has been given special consideration since it is such a significant piece of work undertaken by the student. While students study the taught part of the course they are given a 1 hour a week special lecture to inform them of the requirements of the Dissertation. This module is run so that it coincides with the end of the taught part of the course, which means that on completion of part one students can start immediately on producing the proposal for the dissertation. On submission of the proposal it is assessed and passed to an appropriate supervisor with expertise in the area that the student wishes to carry out the work. It is the supervisor's task to work with the student to improve the proposal to a level that is acceptable and achievable for a master's level within the time constraints. Students work independently on the dissertation having regular meetings with the supervisor. It is important that the student identifies at the proposal stage the various requirements needed to complete the dissertation e.g. equipment, software, space.

Extensive use is made of the University's Virtual Learning Environment (VLE), Moodle, to provide students with access to a range of delivery, and supporting, materials related to each of the modules featured on the programme. In addition to the materials used during the taught sessions, the VLE is used to provide students with additional content such as quizzes, videos, audio recordings, external links, technical reports, research papers, and so forth. The VLE also provides students with the ability to communicate using discussion forums and is the platform primarily used in the issuing, submission, marking, and feedback of student assessment.

21 Work based/placement learning statement

A work placement is not offered on this programme.

22 Welsh medium provision

The programme will be delivered through the medium of English. Students are entitled to submit assessments in the medium of Welsh.

There is currently no opportunity for any part of the programme to be delivered through the medium of Welsh. It is the responsibility of students who wish to be assessed through the Welsh medium to ensure that they inform the programme team of their intentions. 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 School does not have enough bilingual tutors or full-time academic staff capable of assessing through

the medium of Welsh. If no appropriate Welsh speaking tutor/assessor is available, the University's qualified translators will translate the written assessment into English. Due to the technical nature of this programme many of the terms in Welsh are very similar to those in English.

23 Assessment strategy

Module code & title	Assessment type and weighting	Assessment loading	Indicative submission date
COMM50 Postgraduate Study and Research Methods	50% Coursework 50% Coursework	2,000 words 1,500 words	Middle Tri 1 End of Tri 1
COM721 Human Factors Engineering	100% Report	5,000 words	End of Tri 1
COM722 Advanced Artificial Intelligence	50% Coursework 50% Coursework	2,000 words 2,000 words	Middle Tri 1 End of Tri 1
COMM51 Future & Emerging Technologies	70% Coursework 30% Presentation	3,000 words 30 mins. per group	End of Tri 2 End of Tri 2
COMM57 Affective Computing	100% Coursework	8,000 words	End of Tri 2
COMM56 Dissertation	10% Research proposal 90% Dissertation	2,000 words either 15,000 – 20,000 words or 17 Page Journal Paper	Start of Tri 3

24 Assessment regulations

Regulations for Taught Master's Degrees.

Derogations

None.

Non-credit bearing assessment

None.

Borderline classifications (for undergraduate programmes only)

Not applicable.

Restrictions for trailing modules (for taught masters programmes only)

All modules except for COMM50 Post Graduate Study and Research Methods would be eligible for trailing.

25 Programme Management

Programme leader

Dr. Stuart Cunningham

Programme team

Prof. Vic Grout
Dr. Bo Liu
Prof. Richard Picking

Quality management

The programme will be managed under the auspices of the School of Applied Science, Computing and Engineering and the programme will develop and operate within the terms of the overall management of curriculum within the School.

However, there will be a designated MSc Programme Leader for Affective Computing 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 and 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, feedback for individual modules
- Liaison with part-time members of staff involved in module teaching

Student Feedback

The University has procedures for the regular review of its educational provision, including the annual review of modules and programmes, which draw on feedback from such sources as external examiner 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 School's strategic thinking. It also allows the School 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:

Student Voice Forum (SVF): 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 SVFs and the response from the Programme Leader will be posted on the programme pages of Moodle. The MSc Affective Computing will have a representative on the Computing Student Voice Forum.

Student Evaluation of Modules (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 tutors give feedback via this interface within 3 weeks.

Practical work is developed and assessed by having students 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, to resubmit or what areas were good and which areas can be improved on.

Research and scholarship activity

The programme is taught and assessed by active researchers in the field, who all belong to the University's Affective Audio (http://www.affectiveaudio.net/) and/or ARClab (http://arclabnet.weebly.com/) groups, which within the School of Applied Science, Computing and Engineering Research Centre. In the 2014 Research Excellence Framework (REF 2014), the School's submission to the Computer Science and Informatics category received a grade point average of 2.04, with over two-thirds of all research scoring 2* or higher. In particular, the taught modules within the programme are drawn exclusively from the research specialisms of each member of the programme team. For instance:

Module Leader & Role	**Module(s)**
Dr. Stuart Cunningham *Reader in Audio and Affective Computing*	Postgraduate Study and Research Methods Affective Computing
Prof. Richard Picking *Professor of Human-Computer Interaction*	Human Factors Engineering Dissertation
Prof. Vic Grout *Professor of Computing Futures*	Future and Emerging Technologies
Dr. Bo Liu *Reader in Computer-Aided Design*	Advanced Artificial Intelligence

The Affective Audio group is a small, specialist collection of researchers, particularly working on projects related to the application of affective computing technologies and principles in multimedia fields, such as sound; music; video; and the arts. The group has been established for a number of years and consists of four research staff/supervisors; six research (MPhil/PhD) students; and a number of external members. In the last two years the group has produced multiple journal articles (including those published by MIT Press, Springer and the Audio Engineering Society), books chapters, conference papers, and artistic outputs.

ARClab's research encompasses the broader Computing subject and is concentrated in the following areas:

- IOT, Networking and Cybersercurity

- Audio and Affective Computing
- Health and Assisted LivingTechnologies
- HCI, Augmented and Virtual Reality
- CAD/Engineering software
- MIS/Business
- Ethics/professionalism
- Robotics/AI

ARClab has taken over from the previous Computing research groups of Creative and Applied Research for the Digital Society (CARDS) and the Centre for Applied Internet Research (CAIR), which built up their activities very impressively over the past ten 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.

For their dissertations, 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. Though not compulsory, students are encouraged to draw upon the expertise and specialisms of the programme team's research activities when devising a topic of investigation for their dissertation.

In previous years students graduating from Computing's existing MSc programmes have produced some excellent publishable work. In particular, in the last 3 years in excess of 10 papers have been published based on the dissertation work.

26 Learning support

Institutional level support for students

The University has a range of departments that offer the support for students as:

- Library & IT Resources
- The Assessment Centre
- DisAbility Support Team
- Irlen Centre
- Careers Centre and Job Shop
- Zone Enterprise hub
- Chaplaincy
- Counselling & Wellbeing
- Student Funding and Welfare
- International Welfare
- Student Programmes Centre

- Glyndŵr Students' Union

School support for students

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. In Computing, the academic staff have been successfully been piloting the use of a virtual personal tutoring space, enabled using the Moodle VLE, to provide students with the opportunity for peer support and for less urgent issues.

Another forum for discussion is the Student Voice Forum. 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 and for the staff to react and respond speedily to address their concerns.

Programme specific support for students

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 a review of expectations of the programme and clarification of workload and requirements.
- Induction. New students on the programme will undergo an induction programme that 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, and School-based.
- Open Door Policy. Computing operates an Open Door policy, meaning that academic staff are readily and easily accessible and approachable for students outside of scheduled learning and teaching hours. Staff can be approached without the need for a formal appointment to be made.
- 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.

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 two main activities:

- The 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. They also 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 while at the same time outlining some of the cultural differences that exist between their country of origin and the UK.

27 Equality and Diversity

Glyndŵr University is committed to providing access to all students and promotes equal opportunities in compliance with the Equality Act 2010 legislation. This programme complies fully with the University's Equal Opportunities Policy (http://www.glyndwr.ac.uk/en/AboutGlyndwrUniversity/Governance/TheFile,64499,en.pdf), ensuring that everyone who has the potential to achieve in higher education is given the chance to do so.