Title of Module: Research Design and Methods			
Code: COMP11017	**SCQF Level: 11** (Scottish Credit and Qualifications Framework)	**Credit Points: 10**	**ECTS: 5** (European Credit Transfer Scheme)
School:	School of Computing, Engineering and Physical Sciences		
Module Co-ordinator:	Daune West		

Summary of Module

This module discusses the nature of research from the early stages of specifying and designing an appropriate research study through to the selection of different approaches that can be undertaken by a researcher in order to operationalise the research process.
During the module students are introduced to the different approaches to undertaking and validating research (e.g. quantitative and qualitative research), and alternative methods of implementing these research approaches (e.g. experimentation, action research)
The module also covers issues such as: planning, designing, resourcing, sampling, data handling, validation and analysis of data sources, use of library resources, presenting research work in verbal and written formats, literature research, critiquing published research, reflection on research process and output, legal and ethical requirements and constraints.
The assessment for the module places emphasis upon the student being able to demonstrate their ability to identify, define, assess and plan the execution of a piece of research suitable for a MSc level project.
Undertaking this module will provide the student with the opportunity to develop the following UWS graduate attributes: Universal: analytical, critical thinker, inquiring; Work-ready: knowledgeable, problem-solver, effective communicator, motivated, enterprising; Successful: autonomous, innovative, creative, resilient, transformational.

- General Principles of Research

- Specifying a Project; Project Planning; Resources

- Literature Reviews

- Quantitative research and methods - example of scientific method, experimentation

- Qualitative research and methods - example of Action Research

- The Art of Critique

- Research Ethics, plagiarism,

Module Delivery Method					
Face-To-Face	**Blended**	**Fully Online**	**HybridC**	**HybridO**	**Work-based Learning**
✓	✓	✓			

Face-To-Face
Term used to describe the traditional classroom environment where the students and the lecturer meet synchronously in the same room for the whole provision.

Blended
A mode of delivery of a module or a programme that involves online and face-to-face delivery of learning, teaching and assessment activities, student support and feedback. A programme may be considered "blended" if it includes a combination of face-to-face, online and blended modules. If an online programme has any compulsory face-to-face and campus elements it must be described as blended with clearly articulated delivery information to manage student expectations
Fully Online
Instruction that is solely delivered by web-based or internet-based technologies. This term is used to describe the previously used terms distance learning and e learning.
HybridC
Online with mandatory face-to-face learning on Campus
HybridO
Online with optional face-to-face learning on Campus
Work-based Learning
Learning activities where the main location for the learning experience is in the workplace.

Campus(es) for Module Delivery

The module will **normally** be offered on the following campuses / or by Distance/Online Learning:
(Provided viable student numbers permit)

Paisley:	Ayr:	Dumfries:	Lanarkshire:	London:	Distance/Online Learning:	Other:
✓			✓	✓	✓	✓

Term(s) for Module Delivery

(Provided viable student numbers permit).

Term 1	✓	Term 2	✓	Term 3	✓

Learning Outcomes: (maximum of 5 statements)

On successful completion of this module the student will be able to:
L1. to critically evaluate, identify and consider the practical use of approaches to research appropriate to their subject discipline
L2. to critically review and evaluate arguments, research approaches, evidence and conclusions in the academic and research literature of their subject discipline
L3. to propose, construct and defend a suitable research proposal for a MSc level postgraduate research project

Employability Skills and Personal Development Planning (PDP) Skills

SCQF Headings	During completion of this module, there will be an opportunity to achieve core skills in:
Knowledge and Understanding (K and U)	SCQF Level 11. developing reliable research strategie; establishing an appropriate theoretical underpinning; undertaking ethical research; collecting and using data to answer a stated research question/support an argument.
Practice: Applied Knowledge and Understanding	SCQF Level 11. Data collection, data analysis, designing and applying research design strategies, undertaking critique, problem solving
Generic Cognitive skills	SCQF Level 11. Developing strategies for research, critiquing one's own and others' work, reflective practice, building arguments from others' work; designing a comprehensive and joined-up blue-print for research activities.

Communication, ICT and Numeracy Skills	SCQF Level 11. Use of appropriate computer software for written and oral presentation. Discussion of appropriate use of ICT in support of research objectives (e.g. data collection and analysis).
Autonomy, Accountability and Working with others	SCQF Level 7. Responsibility for selection of research topic, ownership of research process including integrity of source usage (e.g. literature, ethical practice)

Pre-requisites:	Before undertaking this module the student should have undertaken the following:	
	Module Code:	**Module Title:**
	Other:	
Co-requisites	**Module Code:**	**Module Title:**

* Indicates that module descriptor is not published.

Learning and Teaching	
The module comprises lectures, tutorials exercises worked in class on an individual and/or group basis. Guest lectures are used, wherever possible, to help extend students' contact with active researchers in the School and to provide specialist knowledge (e.g. statistical analysis). Further useful materials on research approaches, methodology, practical guidelines for undertaking research are provided on Moodle in addition to class examples and exercises.	
Learning Activities During completion of this module, the learning activities undertaken to achieve the module learning outcomes are stated below:	**Student Learning Hours** (Normally totalling 200 hours): (Note: Learning hours include both contact hours and hours spent on other learning activities)
Lecture/Core Content Delivery	10
Tutorial/Synchronous Support Activity	8
Independent Study	82
	100 Hours Total
**Indicative Resources: (eg. Core text, journals, internet access)	
The following materials form essential underpinning for the module content and ultimately for the learning outcomes: Moodle Module Site*, containing lecture slides, tutorial notes and module notes. There are many excellent texts available on the subject of Research Methods. The list below indicates some of the texts that we have found particularly useful. Recommended text for the module: Oates B. J. (2012) Researching Information Systems and Computing. Sage. Other useful texts: Cornford, T. and Smithson, S, (2nd edit.) (2006) Project Research in Information Systems: A Student's Guide, Palgrave MacMillan.	

Creswell, J.W.(2014) Research Design: Qualitative, Quantitative, and Mixed Methods Approaches, (4th edit.) Sage

Wisker, G. (2nd edit.) (2008) The Postgraduate Research Handbook, Palgrave.

Gray, D.E.(2006) Doing Research in the Real World, Sage

Irwin, A. and Michael, M. (2003) Science, Social Theory and Public Knowledge, Open University Press.

Lazar, J, Feng, J.H. and Hochheiser, H (2009) Research Methods in Human-Computer Interaction. Wiley & Sons

Pears, R and Shields, G (2013) Cite Them Right: The Essential Referencing Guide, 9th Edition, Palgrave MacMillan

Wisker, G. (2009) The Undergraduate Research Handbook, Sage.

White, B. (2011) Mapping your thesis: Techniques and rhetorics for Masters and Doctoral Researchers. Harvard Business School Press.

Thiel, D.V. (2014) Research Methods for Engineers. Cambridge University Press.

Naoum, S.G. (2006) Dissertation Research and Writing for Construction Students. Routledge.

Fellows, R.F. and Liu, A.M.M. (2015) Research Methods for Construction (Coursesmart. Wiley Blackwell.

(**N.B. Although reading lists should include current publications, students are advised (particularly for material marked with an asterisk*) to wait until the start of session for confirmation of the most up-to-date material)

Engagement Requirements

In line with the Academic Engagement Procedure, Students are defined as academically engaged if they are regularly engaged with timetabled teaching sessions, course-related learning resources including those in the Library and on the relevant learning platform, and complete assessments and submit these on time. Please refer to the Academic Engagement Procedure at the following link: Academic engagement procedure
Where a module has Professional, Statutory or Regulatory Body requirements these will be listed here:
Students are academically engaged if they are regularly engaged with
timetabled teaching sessions, course-related learning resources including
those in the Library and on Aula and Teams, and complete assessments and submit
these on time.

Supplemental Information

Programme Board	Computing
Assessment Results (Pass/Fail)	No
Subject Panel	Business & Applied Computing

Moderator	Graeme McRobbie
External Examiner	C Luo
Accreditation Details	Accredited by the Joint Board of Moderators as a Technical MSc and meeting Further Learning requirements for a Chartered Engineer (CEng)
Version Number	2.14

Assessment: (also refer to Assessment Outcomes Grids below)
There is a single assessment for this module which is split into two separate parts: Verbal Presentation (5 minute) and defence of proposed research project through the use of suitable presentation software. Week ~6 worth 20% Written MSc level Research Project Proposal. ~2250 words. Week 12 worth 80%
(N.B. (i) **Assessment Outcomes Grids** for the module (one for each component) can be found below which clearly demonstrate how the learning outcomes of the module will be assessed. (ii) An **indicative schedule** listing approximate times within the academic calendar when assessment is likely to feature will be provided within the Student Handbook.)

Assessment Outcome Grids (Footnote A.)

Component 1

Assessment Type (Footnote B.)	Learning Outcome (1)	Learning Outcome (2)	Learning Outcome (3)	Weighting (%) of Assessment Element	Timetabled Contact Hours	
Design/ Diagram/ Drawing/ Photograph/ Sketch	✓	✓	✓	100	0	
Combined Total For All Components				100%	0 hours	

Footnotes
A. Referred to within Assessment Section above
B. Identified in the Learning Outcome Section above

Note(s):
1. More than one assessment method can be used to assess individual learning outcomes. 2. Schools are responsible for determining student contact hours. Please refer to University Policy on contact hours (extract contained within section 10 of the Module Descriptor guidance note). This will normally be variable across Schools, dependent on Programmes &/or Professional requirements.

Equality and Diversity
Nothing in the module should present difficulties for students on the basis of their gender, ethnicity, or sexual orientation. In relation to students with additional support requirements, when a student discloses a disability the individual module tutor, in consultation with the

disability advisor, will agree any appropriate adjustments to be made. Students should note that the language of instruction is English and that they will need to have a reasonable grasp of the language in order to keep abreast of the teaching materials and in submitting assessed work.

UWS Equality and Diversity Policy

(N.B. Every effort will be made by the University to accommodate any equality and diversity issues brought to the attention of the School)