

Module Title	Requirements Analysis and User Centred Design
Level	4
Reference No.	CSI_4_RAU
Credits	20
Student Study Hours	Total: 200 Contact hours: 52 Student managed learning hours: 148
Pre-Requisites	None
Co-requisites	None
Excluded combinations	None
Module coordinator	TBC
Division	Division of Computer Science and Informatics
Short Description	The module covers requirements analysis, the first stage in the software development process and user centered design. Analysis of the requirements is conducted for the purpose of studying a system or its parts in order to identify its objectives and includes eliciting, analysis and modelling of the requirements. The module explores the modelling of requirements from human, data and process centred perspectives. UML is used throughout. The module also includes human-centred design approach that focuses specifically on making systems usable. UCD follows a series of well-defined methods and techniques for analysis, design, and evaluation of software interfaces.
Aims	To provide students with fundamental knowledge of the analysis process and practical skills in modelling using UML tools and techniques in accordance with established good practice and industry standards. The students will also gain the understanding of user centred design and be able to apply a series of well-defined methods and techniques for analysis, design, and evaluation of software interfaces.
Learning Outcomes	LO1: Knowledge and Understanding. You will be able to: - Describe and evaluate the key concepts of iterative, incremental development - Describe and compare a range of the most common tools and techniques for information systems requirements gathering and representation. (Assessed by Modelling Assignment) - Understand the need for user participation in the design process. LO2: Intellectual Skills. You will be able to: - Discuss and evaluate the human, social and management issues associated with information systems development. (Assessed by Modelling Assignment) - Develop the ability to identify and use relevant information from a number of sources to evaluate design principles. (Maps to: BCS 2.2.1 a1-a9; 2.2.3 a1-a3) LO3: Practical Skills. You will be able to: - Use UML modelling tools and techniques to create graphical representations of user, data and processes requirements Assessed by Modelling Assignment - Describe the design characteristics of software artefacts. - Write reports supported by academic reading and argument. (Maps to: BCS 2.2.1 b1-b4; 2.2.3 a4-a6) LO4: Transferable Skills. You will be able to: - Demonstrate personal and team management skills including presentation and formal report writing.

	(Assessed by Modelling Assignment) (Maps to: BCS 2.2.1 c1-c2)
Employability	The ability to identify requirements and communicate these effectively along with rigorous critical evaluation of the relative merits of alternative means realising these requirements and the associated skills sets are fundamental to a successful career in all branches of the IT industry. Also, the user interface continues to be a major determinant in whether a product is successful in the market or not. The skills acquired from this module should help increase employability by providing a firm basis in UCD. Jobs exist within the software development and User Experience (UX) industry.
Teaching and Learning Pattern	Weekly contact time will typically comprise of the following: • A one hour 'lecture based' presentation, although this may take the form of a Q&A interactive session, rather than a conventional lecture. • Two-hour lab-based tutorial where students will be given appropriate activities to practice the covered topic in the lecture • Two-hour lab-based workshop where students will be applying the acquired skills independently on practical projects
Indicative Content	Language, techniques and conceptual frameworks from the following thematic areas will be introduced and explored experientially: • Agile, iterative approaches to software development • Requirements specification • Requirements analysis • Modelling Using Unified Modelling Language (tools and techniques) and CASE tools • UCD concepts and methodologies • User psychology and capabilities • User classification • Designing and prototyping • Usability evaluation and reporting
Assessment Elements & weightings	COURSEWORK 100% Summative Assessment In-class Test will assess students' knowledge of requirements analysis (LO3) Modelling assignment - will assess students' practical skills of analysis of the requirements and use of UML modelling tools and techniques skills. (LO1, LO2&LO3) The coursework for UCD is expected to consist of a number of elements a major part of which will be concerned with the design of a prototype. (Maps to: BCS 2.2.1 a1-a9; 2.2.3 a1-a3; b1-b4; c1-c2) Formative Assessment Skills for the summative assessment will be embedded throughout formative opportunities in Lectures and Workshops. Formative assessment will take different forms, such as: • think-pair-share concept and class discussions • verbal feedback on tutorial activities • observation and questioning to provide instant feedback as the student takes part in learning activities
Indicative Sources (Reading lists)	The main source of supportive material will be resources available on Moodle and references on the World Wide Web. These will be informed by the following publications: Core: Satzinger, J.W., Jackson, R.B. and Burd S.D. (2016). <i>Systems Analysis and Design in a changing world</i> . 7th ed., Cengage Learning

Rogers, Y., Sharp, H. and Preece, J. (2011) *Interaction Design: Beyond Human-Computer Interaction*, 3rd edition. Wiley

Background:

Wazlawick, R.S. (2014) *Object-Oriented Analysis and Design for Information Systems: Modeling with UML, OCL, and IFML*. Morgan Kaufman Publishing

Vernon, V. (2013) *Implementing Domain Driven Design*. Addison Wesley

Adzic, G. (2012) *Impact Mapping*, Provoking Thoughts.

Rogers, Y., Sharp, H. and Preece, J. (2011) *Interaction Design: Beyond Human-Computer Interaction*, 3rd edition. Wiley

Shneiderman, B. and Plaisant, C. (2016) *Designing the User Interface: Strategies for Effective Human-Computer Interaction*, Pearson 2016

Norman, D. (1998) *The Design of Everyday Things*, Basic Books.

Adams Andrew and McCrindle Rachel (2007) *Pandora's Box: Social and Professional Issues of the Information Age*, Wiley and Son.

Typical Online Resources

Don Norman: Designing for people: <http://www.ind.org>

Cornell University Ergonomics Web: <http://ergo.human.cornell.edu>

Nielsen Norman Group (Evidence-Based User Experience Research, Training, and Consulting): <http://www.nngroup.com>

Usability.gov: <http://www.usability.gov>

Interactions – BCS HCI special interest group: <http://www.bcs-hci.org.uk>

ACM Interactions magazine: <http://interactions.acm.org>