London South Bank
University

Requirements Analysis and User Centred Design
CSI-4-RAU

Computer Science and Informatics
(School of Engineering)

Level 4

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1. MODULE DETAILS

Module Title:	Requirements Analysis and User Centred Design
Module Level:	Level 4
Module Reference Number:	CSI-4-RAU
Credit Value:	20
Student Study Hours:	144
Contact Hours:	48
Private Study Hours:	96
Pre-requisite Learning (If applicable):	None
Co-requisite Modules (If applicable):	None
Course(s):	Information Technology and Computer Science
Year and Semester	2020 Semester 2
Module Coordinator:	Maria Lemac
MC Contact Details (Tel, Email, Room)	lemacm@lsbu.ac.uk FW-201
Teaching Team & Contact Details (If applicable):	Idoje, Godwin; Iatropoulos, Ioannis; Chen, Daqing
Summary of Assessment Method:	100% Coursework
External Examiner appointed for module:	Awaiting confirmation

2. SHORT DESCRIPTION

The module covers requirements analysis, the first stage in the software development process and user cantered 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 modeling 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.

3. AIMS OF THE MODULE

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.

4. 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.
- 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.
- Develop the ability to identify and use relevant information from a number of sources to evaluate design principles

LO3: Practical Skills. You will be able to:

- Use UML modelling tools and techniques to create graphical representations of user, data and processes requirements
- Describe the design characteristics of software artefacts.
- Write reports supported by academic reading and argument.

LO4: Transferable Skills. You will be able to:

- Demonstrate personal and team management skills including presentation and formal report writing.

5. ASSESSMENT OF THE MODULE

100% Coursework
In-class Test will assess students' knowledge of requirements analysis.

Modelling and User Interface Assignment – will have two parts. Part 1 will assess students' practical skills of analysis of the requirements and use of UML modelling tools and techniques skills. Part 2 will assess students' ability to design an interface following established user centred design principles

In addition, evaluations will be conducted on existing software and web interfaces. Students will be responsible for designing, conducting and analysing the findings of these evaluations.

6. FEEDBACK

You will receive written feedback on your submissions within 15 teaching days of your submission.

7. INTRODUCTION TO STUDYING THE MODULE

7.1 Overview of the Main Content

The module will introduce you to a range of practices for determining stakeholder's requirements and methods for documenting both requirements and development. You will be introduced to a variety of methodologies and given practical experience of the agile approach.

7.2 Overview of Types of Classes

Weekly contact time will comprise: a one hour 'lecture based' presentation.
A two-hour lab-based seminar / workshop sessions in which tutors will interactively introduce material and provide support and guidance on weekly exercises designed to help you develop your understanding, knowledge and technique.
A two-hour practical session where you will initially work on your agile project and then on your requirements analysis.

7.3 Importance of Student Self-Managed Learning Time

System modelling is something that all human beings do all the time without needing to be taught. However, the formal approaches introduced in this module will take you well beyond everyday competence and set you on the road to being a professional solver of the most challenging problems. While for the most part ideas and techniques are simple and straightforward, in order to develop mastery requires practice both of the techniques themselves and of the software tools needed to express those techniques effectively. A little and often is best. Spending time each day practicing each of the techniques and using each of the tools is the best way to develop mastery.

7.4 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.

8. THE PROGRAMME OF TEACHING, LEARNING AND ASSESSMENT

Week	Lecture	Seminars	Comments	Week Begining
1	Introduction - The learning outcomes and their assessment **Systems Development Life Cycle** System analysis UML – Modelling Agile approach to development Iterative and Incremental Development	**Scrum methodology** Project charter Stand-up meetings Product backlog Sprint backlog Heartbeat retrospective meetings		27th Jan 2020
2	**Stakeholders** Onion Diagram	Identify stakeholders		3th Feb 2020
3	**User Stories** **User stories mapping** Agile practices – examples	How to write user stories? CASE Tools Introduction to Visual Paradigm	Modelling and Interface Design Assignment given out	10th Feb 2020
4	**Use case diagrams**	Notation Create use case diagrams from the descriptions	Use Visual Paradigm to create diagrams	17th Feb 2020
5	**Use case descriptions**	Write Use case descriptions	Feedback given on the work done for the assignment	24th Feb 2020
6	**Activity Diagrams** Notation	Use VP to create activity diagrams from the previous use case		2nd Mar 2020
7	**Domain Class Diagrams** CRUD Notation	Search for nouns – technique CRUD Use VP to create class diagram	Feedback given on the work done for the assignment	09th Mar 2020
8	**Consolidation/Revision**	Feedback given on the work done for the assignment	**Modelling Part of the Assignment submission**	16th Mar 2020
9	User Cantered Design Evaluation Methods	Evaluate software interface	Design a method	23th Mar 2020
10	Users	Identify and categorise users		30th Mar 2020
Easter Break →→→→→→→→ Week beginning 6th April, 13th of April and 20th of April				
11	Design Build prototypes	Use appropriate tools to design and build prototypes	Feedback given on the work done for the assignment	27th Apr 2020
12	Revision / Feedback	Feedback given on the work done for the assignment		4th May 2020
13	Submission	Feedback given on the work done for the assignment	**Interface Design Part of the Assignment submission**	11th May 2020

9. LEARNING RESOURCES

9.1 Core Materials

Satzinger, J.W., Jackson, R.B. and Burd S.D. (2012). *Introduction to Systems Analysis and Design, An Agile, Iterative Approach*. 6th ed. Canada: Course Technology, Cengage Learning

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

Disciplined Agile Delivery: A Practitioner's Guide to Agile Software Delivery in the Enterprise, Ambler, S. IBM Press, 2012.

The important material can also be found at:
http://www.agilemodeling.com/

You might find the following web site helpful:

The Requirements process
http://www.volere.co.uk/index.htm

The Onion stakeholder Model
http://www.scenarioplus.org.uk/download_stakeholders.html

We'll be using Visual Paradigm. It is a very comprehensive professional quality CASE tool with extensive help and tutorials.

9.2 Optional Materials

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

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

Leffingwell, D. (2010) *Agile Software Requirements: Lean Requirements Practices for Teams, Programs, and the Enterprise (Agile Software Development)*. Addison Wesley.

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

Norman, D. (1998) *The Design of Everday 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.jnd.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