Course Name: Software Engineering Workshop 1
Course Code: COMP SCI 2205
Course Designer & Coordinator: M. Ali Babar
Teaching Staff: M. Ali Babar & Christoph Treude

Synopsis:

The objectives of this course are to provide software engineering students with the fundamental knowledge and practical understanding of methods, approaches, and tools for requirements engineering in different software development paradigms, deriving and reasoning appropriate description of a desired system. This course will also focus on Modeling and analysis knowledge and skills for documenting and evaluating requirements and conceptual design. This course will also focus on teamwork and communication skills, requirements prioritisation and negotiation, and automated software engineering tools relevant to requirements and modelling phases of software engineering. The course design and delivery will also focus on building a unique identity of software engineering in the students from an early stage of their degree program.

The course will be delivered in a seminar/workshop styles and a large number of assessment tasks will be project based in order to give the students skills and experience of working in teams on projects work like real world environments.

At the conclusion of the course, the students are expected to be able to:

1. Describe different phases of requirements engineering for software systems.
2. Articulate different approaches to elicit, specify, document, and validate requirements.
3. Demonstrate abilities of using requirements engineering approaches using (where appropriate) relevant tools.
4. Critically articulate various challenges involved and strategies available in different phases of requirements engineering.
5. Effectively work in small groups using physical and online facilities and social media technologies for different phases of requirements engineering.

Table 1: The activities and the schedule

Date	Seminar Sessions Monday: 11am – 1pm 218 Ingkarni Wardli	Working Sessions Thursday: 11am – 1pm B16 Ingkarni Wardli
27/02/17 Week 1 Ali	Course Introduction **Session Topic:** Introduction to Software Requirements **Part of Chapter 1 of the course book.**	**WS1 (2/3/17)** Tools for the course (11:10-11:45) **Exercise 1:** business analyst role and responsibilities (11:45-12:15) A brief on UML (12:15-01:00).
06/03/17 Week 2 Ali	Presentation: **P1** (11:10-11:45) **Session Topic:** Requirements Development & Types of Software Requirements **Part of Chapter 1 & Chapter 14 of the course book.**	Nothing scheduled. **Exercise 1 due** (23:55 on 10/03/17)

13/03/17 Week 3 Ali	**Public Holiday on Monday 13/03/17.**	**WS2 (16/3/17)** Presentation: **P2** (11:10-11:45) Industry Speaker: **Janet Bannister – MCBI, Adelaide** (11:45-12:15) RE Tools: **(Chapter 30) –** (12:15-01:00)
20/03/17 Week 4 Ali	Presentation: **P3** (11:10-11:45) **Session Topic:** Requirements Elicitation **Chapter 7 of the course book.** **Exercise 2 released**	No Working Session
27/03/17 Week 5 Christoph	Presentation: **P4** (11:10-11:45) **Session Topic:** Requirements Analysis **Chapter 8 of the course book.**	**WS3 (30/3/17)** Presentation: **P5** (11:10-11:45) **Projects description & meeting with clients** (11:45-01:00)
03/4/17 Week 6 Christoph	Presentation: **P6** (11:10-11:45) **Session Topic:** Requirements Specification 1 **Chapter 10 of the course book.**	No Working Session **Exercise 2 due** (23:55 on 7/4/17)
10/4/17	NTW	NTW
17/4/17	NTW	NTW
24/4/17 Week 7 Christoph	Presentation: **P7** (11:10-11:45) **Session Topic:** Requirements Specification 2 **Chapter 12 of the course book.**	**WS4 (27/4/17)** Presentation: **P1** (11:10-11:45) Exercise on requirements elicitation and specification (11:45-12:30) Project updates (12:30-01:00)
01/5/17 Week 8 Christoph	Presentation: **P2** (11:10-11:45) **Session Topic:** Requirements Verification & Validation **Chapter 17 of the course book.** **Exercise 3 released**	No Working Session
08/05/17 Week 9 Christoph	Presentation: **P3** (11:10-11:45) **Session Topic:** Requirements Management **Chapter 27 of the course book.**	**WS5 (11/5/17)** Presentation: **P4** (11:10-11:45) **Project status presentation and discussion with Clients**
15/05/17 Week 10 Christoph	Presentation: **P5** (11:10-11:45) **Session Topic:** Prototype & Data Driven Requirements **Chapter 15 of the course book.**	No Working Session **Exercise 3 due** (23:55 on 19/5/17)
22/05/17 Week 11 TBA	Presentation: **P6** (11:10-11:45) Project Work – Questions & Feedback **Exercise 4 released**	**WS6 (25/5/17)** Presentation: **P7** (11:10-11:45) Project update discussion & feedback
29/05/17 Week 12 Ali	**Session Topic:** Requirements Engineering for Emerging Technologies/Domains	No Working Session **Exercise 4 due** (23:55 on 3/6/17)

Primary Course Book (The relevant chapters indicated in Table1):

- Karl Wiegers and Jo Beatty, Software Requirements, Third Edition, 2014, Microsoft Press.

This book can be ordered directly from Pearson using the following link or from the bookstore in the University.

http://www.pearson.com.au/9780735679665

Recommended Books for Further Readings (Optional).

- Chris Rupp & die SOPHISTen, Requirements-Engineering und – Management, 6th Edition (Only material in English from the Website).
- Ian Sommerville, Software Engineering, 10th Edition, 2015. (Chapters on Requirements and Modeling).

Research Papers included in the course for presentations ((Assessable material). These papers will be provided to you. The papers (P1 – P7) have been assigned to different sessions in Table 1.

1. Lianping Chen, M. Ali Babar, Bashar Nuseibeh, Characterizing Architecturally Significant Requirements, IEEE Software, 30(2): 38-45 (2013).
2. Jane Cleland-Huang, Adam Czauderna and Ed Keenan: A Persona-Based Approach for Exploring Architecturally Significant Requirements in Agile Projects. REFSQ 2013: 18-33.
3. John M. Carroll, Five Reasons for Scenario-Based Design, The 32nd Hawaii International Conference on System Sciences, 1999.
4. Neil Maiden, Alexis Gizikis, and Suzanne Robertson, Provoking Creativity: Imagine What Your Requirements Could Be Like, IEEE Software, Sept./Oct. 2004.
5. Guttorm Sindre and Andreas L. Opdahl, Eliciting security requirements with misuse cases, Requirements Engineering (2005), 10: 34-44.
6. John Mylopoulou and Lawrence Chung, Stephen Liao, Huaiqing Wang, and Eric Yu, Exploring Alternatives during Requirements Analysis, Jan./Feb. 2001.
7. Daniela Damian and Didar Zowghi, The impact of Stakeholders' geographical distribution on managing requirements in a multi-site organization, International Conference on Requirements Engineering 2002.

Assessment Components

- Reviewing and presenting assigned article (15%) – Group presentation, Individual Assessment – An article will be assigned to a group of students for reviewing and presenting. Each member of a group will critically review the article and write one page summary of his/her understanding of the article (7.5%). Each group will make a presentation (7.5%) on the assigned article; each of the members in the group is

expected to actively participate in the presentation and Q&A as the assessment is individual. Each member of the team will be assessed based on the performance in the presentation and Q&A.

- Quizzes (15%) – Individual assessment – The quizzes will be based on the material discussed (or to be discussed) in the class. That means the students are expected to come to class after preparing the material that is going to be discussed in the class. There will three quizzes without any prior announcement.
- Exercises (20%) – Individual assessment – There will be take home (or in class) exercises based on the material discussed in the class or other relevant material/tasks assigned by the teaching staff. There will be four exercises.
- Software Requirements Project (50%) – (Group 30% and individual 20% assessments) – This assessment will be a multi-phase activities in which the students will be working on a requirements engineering project that would purport to elicit, specify, validate, and model software requirements.

Hurdle Requirement: If your overall mark for the course is greater than 44 F but, your mark for the software requirements project is less than 40%, your overall mark for the course will be reduced to 44 F.

Late submission policy: Consult the document in the course information section of the course site on Canvas.

Other information but not formal prerequisite:

The students are expected to know Unified Modelling Language (UML) from the courses like Introduction to Software Engineering or their own learning. Students can also quickly learn the key aspects of UML through online resources and tutorials on the Internet (Ask your teacher if you need suggestions for relevant resources on the Internet).

Course duration, Learning and Teaching activities, and workload:

This course consists of 12 weeks of different types of learning and teaching activities such as seminar style lectures, moderated discussions on the core topics with relevant industrial examples, guest lectures, students' presentations and project work. There will be 10-12 seminar sessions led/moderated by the main teaching staff. There will be 6 working sessions led/moderated by the teaching assistants. Each student is expected to spend approximately 12 hours on this course (including the hours spent in seminar sessions and working sessions).

Note: The lecturing time will be utilized for learning and teaching activities using flipped classroom and seminar styles. The students are expected to prepare the material to be discussed before the face-to-face meeting of the whole class and actively participate in the discussions and learning activities designed to achieve the learning objectives of the course.

Explaining the Assessment Rubric

Reviewing and presenting assigned article (15%)

The review of the article is worth 7.5% of the total assessment of the course. Each student is expected to critically review an article and write a summary (one page, 12point, and single space). The summary will be assessed using the following points:

- Does the summary convey at least 3 key points from the article?
- Does the summary critically evaluate the strengthens and weaknesses of the reported approach(es)?
- Does the summary include the student's own reflections about how the article can be useful for learning a particular topic of requirements engineering?
- Has the summary professionally drafted and proofread.

The paper presentation is worth 7.5% of the total assessment of the course. Each presentation has been allocated 35 minutes. However, the presentation must be finished within 20 minutes. The remaining time is allocated for Q&A and discussion. Please bring your presentation on a device (e.g., USB) or use online drive that can be easily accessible by you from the classroom.

Each member of a group will be assessed by using the following Rubric:

- Is the quality of slides and presentation satisfactory?
- Does a student actively participate in the presentation?
- Has a student been able to communicate the key concepts presented by him/her from the paper?
- Has the presentation completed on time?
- Has a student been able to give satisfactory answers to questions?

Quizzes (15%) – The marks will be dependent upon the correct answers to the questions in each of the three quizzes (5% for each quiz).

Exercises (20%) – Each of the four exercises' descriptions will also include how the solutions to the exercises will b assessed.

Software Requirements Project (50%) – (Group 30% and individual 20% assessments) – The project description will include an explanation about how the project will be assessed. There are 20% marks for individual assessment and 30% marks for group assessment. The explanation for the individual tasks and the group tasks will be provided.

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