Blekinge Institute of Technology
Department of Software Engineering

Revision: 3
Reg.no: BTH-4.1.14-1504-2022

COURSE SYLLABUS

Kravhantering

Requirements Engineering

6 credits (6 högskolepoäng)

Course code: PA1463
Main field of study: Software Engineering, Technology
Disciplinary domain: Technology
Education level: First cycle
Specialization: G1F - First cycle, has less than 60 credits in first cycle course/s as entry requirements

Language of instruction: English
Applies from: 2023-08-28
Approved: 2022-12-15

1. Decision

This course is established by Dean 2022-12-15. The course syllabus is approved by Head of Department of Software Engineering 2022-12-15 and applies from 2023-08-28.

2. Entry requirements

Admission to the course requires completed courses Object-Oriented Design, 6 credits and Software Engineering, 6 credits.

3. Objective and content

3.1 Objective

The course focuses on basic and advanced knowledge and skills in Requirements Engineering for the development of software-intensive systems and products. The course provides the students with both a theoretical and practical application of methods and techniques for requirements engineering. A particular focus will be set on the structured specification of requirements according to an established artefact model which reflects both the state of the art and the state of practice in the field and which is applicable for different philosophies (agile and plan-driven alike). In the course, we will put a particular focus on considering requirements engineering as a holistic discipline deeply integrated into the software development life cycle.

3.2 Content

This course introduces students to the problem of determining and specifying what a software system under consideration should do, why and by whom the system is needed. There are selected non-technical aspects of the course, such identification of stakeholders and requirements negotiation. However, the course will largely concentrate on three thematic areas:

1. Fundamentals and terminology in Requirements Engineering and Management.
2. Contents to be considered in a requirements specification and techniques and models specifying those content.
3. Outlook on future perspectives and research topics.

Most of the course will concentrate on technical approaches to the engineering of requirements, such as techniques for identifying stakeholders, their goals, constraints, and their requirements, notations and models for documenting and specifying requirements, models for structuring the artefacts (outcomes) of requirements engineering, and techniques for validating those artefacts in context of quality assurance.

In detail, the course will teach the following:
• Relevance of Requirements Engineering as an interconnected discipline
• Fundamentals of Requirements Engineering and Management including
o basic terminology, approaches, and underlying system models (including decomposition, abstraction, and system views)
o artefacts and models in Requirements Engineering
o the interrelation of Requirements Engineering to the overall software development lifecycle
• Basic analytical competencies and competencies in elaborating, specifying, and communicating requirements
• Techniques for a structured specification of requirements classes and related artefacts
• Basic approaches and techniques for requirements management and quality assurance

4. Learning outcomes

The following learning outcomes are examined in the course:

4.1 Knowledge and understanding

On completion of the course, the student will be able to:

• Describe and discuss basic principles of requirements engineering, and their relevance for ensuring quality products.
• Correctly use requirements engineering terminology.
• List and in depth describe different methods and approaches for requirements engineering.

4.2 Competence and skills

On completion of the course, the student will be able to:

• Anticipate common challenges when acquiring or generating requirements to mitigate these challenges.
• Apply techniques to elicit and document requirements in accordance with an established artefact-based reference model for a domain-independent Requirements Engineering.

4.3 Judgement and approach

On completion of the course, the student will be able to:

• Interpret the state of the art in Requirements Engineering techniques and associate them with practices as applied in industry.

5. Learning activities

The course will have traditional lectures to introduce the subjects Requirements Engineering. In parallel to lectures, the students will apply theory in practice through laboratory exercises and assignments. The course ends with a written examination.

6. Assessment and grading

Modes of examinations of the course

Code	Module	Credits	Grade
2105	Written examination	3 credits	AF
2115	Written assignment 1	1.5 credits	AF
2125	Written assignment 2	1.5 credits	AF

The course will be graded A Excellent, B Very good, C Good, D Satisfactory, E Sufficient, FX Fail, supplementation required, F Fail.

The total grade is based on a simple average. Rounding occurs upwards.

The information before a course occasion states the assessment criteria and make explicit in which modes of examination that the learning outcomes are assessed.

An examiner can, after consulting the Disability Advisor at BTH, decide on a customized examination form for a student with a long-term disability to be provided with an examination equivalent to one given to a student who is not disabled.

7. Course evaluation

The course evaluation should be carried out in line with BTH:s course evaluation template and process.

8. Restrictions regarding degree

The course can form part of a degree but not together with another course the content of which completely or partly corresponds with the contents of this course.

9. Course literature and other materials of instruction

Two books are recommended:

• Karl Wiegers, Joy Beatty. Software Requirements. Microsoft Press, Third Edition, 2013. ISBN: 978-0735679665
• Axel van Lamsweerde: Requirements Engineering: From System Goals to UML Models to Software Specifications. Wiley Press, First Edition, 2009. ISBN: 978-8126545896

Additional material, such as research literature or other complementary material, may be made available during the course.