

Project Description

1. Objectives

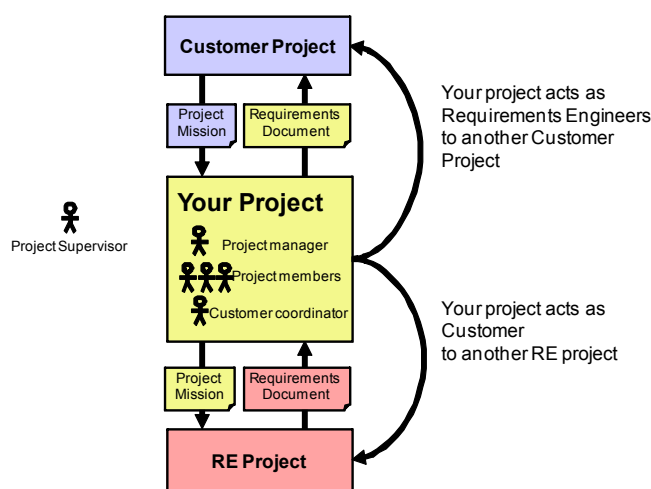
The main goals of the project from a course perspective are to:

- • connect theory to practice,
- • give a concrete experience of practical requirements engineering,
- • promote student motivation through real stakeholders,
- • provide a group-learning setting focused on realistic problems.

2. Project Context and Roles

The project has two main tasks:

- • **Customer work** - To invent Project Mission and act as customer providing domain expertise and feedback to another team that acts as developer.
- • **Development work** - To develop a system model including requirements of different types at appropriate abstraction levels based on a given Project Mission from another team acting as your customer.



The project team consists of 4-5 members and these two different roles should be appointed by the project team to two different team members:

- **Project Manager** – This role is responsible for coordinating your team’s requirements engineering work. This includes interacting with another team’s customer coordinator.
- **Customer Coordinator** – This role is responsible for coordinating your team’s work as customers and domain experts. This includes interacting with another team’s project manager.

3. General Rules

1. The project comprises 80 hours per person
2. Approximately 80% of each team member’s total effort should be devoted to development work.
3. Approximately 20% of each team member’s total effort should be devoted to customer work.
4. The total effort should be evenly distributed among the team members.
5. In weeks W2, W4, and W6 a 30-minute meeting should be scheduled with the project supervisor, where the project team reports on status, challenges, and plans. At least 24 hours before the meeting, the team members **must send an agenda** of the meeting to the supervisor. During the bi-weekly report meetings there will be opportunity to discuss challenges and open issues across projects.

4. Deliverables

Phase	Deliverables	Deadline
Definition	Project Mission	Week1: Thursday 1:00pm
Iteration 1	Release 1	Week4: Monday 8:00am
Iteration 2	Release 2	Week6: Monday 8:00am
	Validation checklist	Week6: Monday 8:00am
	Validation report	Week6: Friday 8:00am
Iteration 3	Conference Presentation	Week7: Monday 4:00pm
	Release 3	Week8: Monday 8:00am
	Course Evaluation	Week8: Friday 8:00am

4.1 Project Mission

Acting as customer you shall prepare a Project Mission for another project. The Project Mission defines what type of system for which the employed project shall elicit, prioritize, specify and validate requirements. The project mission shall *fit on one page when printed* and be in **.pdf** format for easy printing and web publishing. The project mission shall include a descriptive project name as well as the names of its authors and email addresses (that are actually used) of all authors.

You shall fulfil the following criteria regarding the system you propose:

- You have a deep understanding of the application domain
- You have a genuine interest in the system
- You are able to assess the value of detailed requirements

In the Project Mission you shall state which one of the following customer roles you take:

- *Potential Customer*: You act as a part of the market and may consider buying the product. The other project owns the product and decides in product content, while you give input and feedback.
- *Product Owner*: You act to develop as well as sell the product on an open market. The other project is subcontracted to do the requirements engineering only. You decide on priorities and product content.

4.2 Releases R1, R2 and R3

1. You should work iteratively and divide your work into 3 main iterations, each ending with a release with all your accumulated work products (you may have more sub-iterations with additional team-internal releases).
2. The content of each release should be more complete compared to the previous.
3. Each release should be divided into two explicit parts: **System Requirements (Requirements Document)** and **Project Experiences (experience Report)**, each with its own **table of contents**.
4. There should be an **overview description** of each release to make navigation and assessment easy. Moreover, for releases R2 and R3, a **change history** must be included.
5. A release should be delivered in electronic form via pdf files (one for each part) in an email to the project supervisor.
6. The final release R3 must include all of the following documents: System Requirements (Requirements Document), Project Experiences (Experiences Report), Validation Checklist (delivered already in R2), Validation Report (delivered already in R2), Conference Presentation, and Course Evaluation.

The System Requirements document (Requirements Document) must include the following information:

1. Different types of system requirements (e.g. data, functional, quality) at different levels (e.g. goal, domain, product design).
2. Several different specification techniques (e.g. context diagrams, features, virtual windows, task descriptions)
3. Each requirement must have a unique identity (name or number)
4. A subset of the requirements should be prioritized using at least two different prioritization techniques.
5. A subset of the requirements should be implemented as mock-up designs (e.g. screens and prototypes, analog drawings, clickable presentations, executable GUI-builder mockups).
6. A subset of the requirements should be release planned. The release planning information should define which requirements that are implemented by the development team as mock-up designs in R3, and which requirements are selected to be fully implemented in the imagined releases R4 and R5.

The Project Experience report (Experience Report) must include the following information:

1. A description of your requirements engineering work, including experiences and reflections in relation to learning objectives.
2. Description of the chosen methods/techniques for elicitation, specification, validation, and prioritization.
3. Motivation for *why* you chose the used methods/techniques.
4. Reflection of the usage of these methods/techniques in terms of what was successful, what was challenging, and *why* it was successful and/or challenging. Example questions for reflection: What have you learned in relation to the learning objectives in the course syllabus? What would you have done differently if you would do this project again as a “real” project, based on what you know now?
5. The Project Experiences (Experience Report) should *not* include course evaluation issues, but focus on your own work and learning outcome.
6. The Project Experience report should be formatted using the IEEE Conference Proceedings format.
7. The Project Experience report must not exceed 8 pages

Validation Checklist, Validation Report – Acting as a customer, you should validate release R2 by the development team and hand in a separate Validation Report with R2.

1. Your team should produce relevant and useful changes for improvement of R2.
2. Each change must be ranked for criticality.
3. You should be provided with a **Validation Checklist** by the development team.

Conference Presentation – Prepare and rehearse a short presentation.

1. Spend approx. 10% of the time on project mission
2. Spend approx. 45% of the time on overview of project results including techniques used
3. Spend approx. 45% of the time on important experiences and learning outcome
4. Slides should be in {.ppt|.pptx|.pdf}

Course Evaluation (Not part of assessment) A separate Course Evaluation document should be handed in by the team. If team members have different views, it is valuable if these differences are reflected. For each relevant course element answer questions such as: What worked well? If something needs improvement, *why* and *how* would you like it to be changed?

5. Project assessment

1. The deliverables Project Mission and Conference Presentation is pass/fail only
2. The project grade of fail/3/4/5 (fail/G/VG for GU students) is based on Release R3, Validation Checklist, and the Validation Report according to the criteria in the table on the next page.
3. The Course Evaluation is not part of the assessment

<i>Assessment criteria</i>	<i>Prerequisites for project grade 3</i>	<i>Additional prerequisites for project grade 4</i>	<i>Additional prerequisites for project grade 5</i>
Specification	<p>3A) Demonstrate acceptable ability to apply several suitable specification technique (e.g. task descriptions and screen prototypes), and several types of requirements (e.g. data, function, quality), at several abstraction levels (e.g. goal, domain, product, design).</p> <p>3B) Demonstrate acceptable ability to define a system's boundaries and its interaction with external entities.</p> <p>3C) Demonstrate ability to reflect on specification experiences.</p>	<p>4A) Demonstrate advanced ability to adequately combine different degrees of completeness and different level of abstraction.</p> <p>4B) Use several different specification techniques adequately tailored to the context.</p> <p>4C) A relevant subset of requirements has explicit inter-dependency links that create a consistent and coherent system requirements model.</p> <p>4D) Several requirements have explicit rationale that reduces risks of misinterpretation.</p>	<p>5A) Demonstrate excellent ability to combine specification techniques in a motivated trade off among qualities (e.g. completeness, unambiguity, verifiability) in relation to the benefit of the effort, while balancing multiple stakeholders priorities.</p> <p>5B) A selected set of important inter-dependency links among requirements are managed as requirements evolve, based on a cost-benefit discussion.</p> <p>5C) A relevant subset of quality requirements have estimations of target levels using well- defined scales that cover prioritized quality requirements at different abstraction levels.</p>
Elicitation	<p>3D) Demonstrate acceptable ability to reason about the students' own choices of several elicitation method in relation to a realistic context.</p> <p>3E) Demonstrate ability to reflect on elicitation experiences.</p>	<p>4E) Demonstrate advanced ability to reason about choices of several elicitation methods in relation to a realistic context.</p> <p>4F) Experiences from elicitation are discussed in relation to project type and domain.</p> <p>4G) There is a reflected connection between an analysis of trade-offs in evolving specification quality and the need for further elicitation.</p>	<p>5D) Demonstrate excellent ability to reason about choice of several elicitation methods in relation to different contexts.</p> <p>5E) Demonstrate willingness to go beyond initial stakeholders while challenging the domain boundaries and eliciting deep domain knowledge.</p>
Validation	<p>3F) Demonstrate acceptable ability to assess the quality of requirements and find several relevant problems of several different types.</p> <p>3G) Demonstrate acceptable ability to use several validation technique.</p> <p>3H) Demonstrate acceptable ability to reflect on validation experiences.</p>	<p>4H) Demonstrate advanced ability to find, prioritize and discuss requirements quality problems of different type, by reaching beyond syntactic issues to deep semantic issues, using domain knowledge.</p> <p>4I) There is a discussion of rationale for tailoring of the validation to the context and an explanation of why the checklist provided to the customer is designed as it is.</p>	<p>5F) Demonstrate excellent ability to reason about the relation between requirements quality problems and contextual risks to the success of the envisioned project, both from a customer and developer viewpoint.</p>
Prioritization	<p>3I) Demonstrate acceptable ability to use more than one prioritization technique in a relevant way.</p> <p>3J) Make an informed comparison of at least two different prioritization techniques with respect to relevant criteria.</p> <p>3K) Demonstrate ability to reflect on prioritization and release planning experiences.</p>	<p>4J) Demonstrate advanced ability to utilize priorities to focus requirements engineering efforts, for example to focus further elicitation activities.</p> <p>4K) Priorities are used to create a relevant release plan for a subset of features.</p> <p>4L) Priorities from several stakeholders are weighted and combined based on explicit rationale.</p>	<p>5G) Demonstrate excellent ability to integrate and reflect on several prioritization techniques that are applied iteratively to different types of requirements.</p> <p>5H) Prioritization of quality requirements takes different quality levels into account.</p> <p>5I) Priorities are used to focus improvements of specification quality on a well motivated subset of requirements, based on reflections on own experiences.</p>