Objectives

The main objective of the course is to teach proper organization of the software engineering (SE) process for building software applications.

This objective is realized through teaching of four SE disciplines:
- user requirements elicitation (UR)
- software requirements formulation (SR)
- architectural design (AD)
- detailed design (DD)

These disciplines are taught as parts of the overall software engineering methodology based on an iterative lifecycle.

SE1 covers first two of the above disciplines.
Literature - main


Literature - supplementary


Course contents (URS)

Software engineering process and requirements
- Problems in software engineering projects
- Software engineering methodologies
- Core practices of software engineering
- Requirements in the software engineering process

Specifying user requirements
- Modelling of the requirements
- Requirements documentation
- System vision
- Business process description
- Determining the scope of a software system

Course contents (URS)

Use case, vocabulary and business modelling
- Use case model overview and details
- Vocabulary construction
- Vocabulary and the use case model
- Business use cases
- Activities – description of use cases
- Transformation from the business model to the user requirements model
Course contents (SRS)

Software requirements – structure and associated process
- Software requirements in an iterative process
- Criteria for use case prioritization
- Software requirements and acceptance testing
- User documentation vs. requirements

Software requirements modelling (static)
- Class model
- Class modelling on the requirements level
- Classes mapped from vocabulary notions

Course contents (SRS)

Software requirements modelling
- Scenario model
- Details of scenario modelling
- Scenarios and activities
- Scenarios mapped from use cases

Organization and quality of software requirements
- Non-functional requirements types
- Properties of good software requirements specification
- Requirements realization – transformation to design
### Timetable (1) – User Requirements

| Session 1, Lecture (04.12) | Software engineering process and requirements |
| Session 2, Lecture (05.12): Specifying user requirements |
| Session 3, Tutorial (11.12): Specifying user requirements |
| Session 4, Lecture (12.12): Use case, vocabulary and business modelling |
| Session 5, Tutorial (13.12): Use case, vocabulary and business modelling |
| Session 6, Presentations (18.12): User Requirements Specification |
| Session 7, Peer Reviews (20.12): User Requirements Specification |

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### Timetable (2) – Software Requirements

| Session 1, Lecture (19.12) | Software requirements – structure and associated process |
| Session 2, Lecture (08.01): Software requirements modelling (static) |
| Session 3, Tutorial (09.01): Software requirements modelling (static) |
| Session 4, Lecture (10.01): Software requirements modelling (dynamic) |
| Session 5, Tutorial (15.01): Software requirements modelling (dynamic) + SRS ver. 1 |
| Session 6, Lecture (16.01): Organization and quality of software requirements |
| Session 7, Tutorial (17.01): Software requirements specification |

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Session 8, Peer Reviews (22.01): Software Requirements Specification
Session 9, Presentation (23.01): Software Requirements Specification ver. 2 + URS ver. 2 (if necessary)
Session 10, Examination (24.01)

Timetable (3) – Software Requirements

Marking scheme

The course requires the realization of a team work along the semester (60% of the final mark), as well as individual assignments and theoretical eliminatory test examination (40% of the final mark).

70% Practical part of the mark:
- A) 40% Evaluation of delivered documents
- B) 20% Evaluation of public presentations
- C) 10% Evaluation of review reports on the work of other teams

30% Theoretical part of the mark:
- D) 10% Evaluation of the proposal of questions for the final examination
- E) 20% Mark of the final test examination

A, B are team marks (60%). C, D and E are individual marks (40%).
Deliverables and deadlines

GROUP: User Requirements Specification (URS1) – 18 December
- Document prepared according to outline given during the lectures
- Around 16-25 pages

INDIVIDUAL: URS Review (REV1) – 20 December
- Around 2 pages

GROUP: Software Requirements Specification (SRS1) – 15 January
- Document prepared according to outline given during the lectures
- First part of the document; around 8 pages

INDIVIDUAL: SRS Review (REV2) – 22 January
- Around 2 pages

INDIVIDUAL: Examination Questions (QUE) – 22 January
- 8 questions per student; every question has 4 answers to choose from.

GROUP: Software Requirements Specification (SRS2) – 23 January
- Final version of the document (incl. SRS1, SRS2); around 20-30 pages