• Contact your the team members, agree about the collaboration means (online, offline, hybrid), time, responsibilities of the team members
• Discuss and select the scenario – inform the lecturer about the selected scenario
• Define the scope of the scenario
• Elicit requirements – background reading, analysis of existing systems, brainstorming, etc.
• In the team – negotiate and agree about the scope, about the elicited requirements
• Specify / document initial requirements to the requirements specification
• Submit the requirements specification within the deadline
You should perform activities…

• Requirements elicitation
• Requirements specification
• Requirements negotiation

… and prepare a document

Requirements Specification
Your Requirements Specification should...

• … be organised and supported by the requirements specification template

• … include
  • Purpose of the Specification
  • Scope (System context)
    • Subject facet, usage facet, IT system facet, Development facet
  • Acronyms and definitions
    • Start the glossary!!!
  • Overview of specification / structure

• …
Your specification should…

• … include
  
  • Product perspective
  • Product functions (generic at this point)
  • User classes and characteristics
  • Assumptions and dependencies

• Functional requirements
  • Each requirement should…
    • Have a unique ID
    • Have a description – you must use criteria for good requirements

• Non-functional requirements
  • Performance
  • Reliability
  • Security
  • Maintainability
  • Portability
Initial requirements specification

- Elicitation
- Specification
- Negotiation

Problem statement

Template for req. specification

Initial req. specification
Initial requirements specification

Requirements management
*(prioritization, traceability, version control)*

- Elicitation
- Specification
- Negotiation

Requirements validation
1. Select a set and prioritise requirements in this set using the AHP method
2. Define traceability model
3. Define traceability properties, create traceability matrix or traceability graph
4. Introduce version for the requirements document, version for individual (prioritised) requirements

5. Contact the classmates’ teams:
   • Acquire their requirements specification
   • Evaluate quality of the classmates’ specification by filling in the questionnaire
   • Send the filled questionnaires to the classmates

6. Improve the specification according to your classmates feedback
Requirements Management

Your requirements should be

• **Prioritised**
  • Show that you know
    • what is prioritization and how to find requirements for prioritisation
    • How to apply AHP method

• **Traceable**
  • Pre-traceability
    • To the source or origin
  • Post-traceability
    • To other requirements

• **Version of**
  • specification document
  • individual requirements

  **Traceability model**
  • E.g., where traceability artefacts are *functional*, *performance*, *usability*, *security*, etc. requirements
**Initial requirements specification**

Requirements validation

- Elicitation
- Specification
- Negotiation

Requirements management *(prioritization, traceability, version control)*

**Requirements modelling** *(Goals, Scenarios, Solution-oriented requirements)*

- Elicitation
- Specification
- Negotiation

**Template for req. specification**

**Initial req. specification**

**Refined/detailed req. specification**

**Modelling languages**
• Examine and explore how to apply:
  • Goal modelling to capture actor dependencies and characterise system stateholders
  • Goal modelling to define system goals
  • Scenario modelling to explore system functions
  • Static (structure or data) modelling to explore solution oriented requirements
  • Behaviour modelling to explore behaviour of system objects
  • Functional modelling to explore interactions among system objects
Actor and their goal modelling

1: Create the actor/stakeholder dependency model
   • Illustrate how different actors/stakeholders defined in your specification interact and depend on each other. How do they help achieve each other goals?
     • This model should explain your actor/stakeholder interests and goals. Place this model in the section where you describe the actors/ stakeholders (i.e., User characteristics)
     • The model must be consistent with respect to the overall specification
     • The model should be called according to the context, which will be represented in the model (it should not be called as “i* diagram” or “dependency model” or similar)

2: Create another model where software intensive system is introduced
   • Illustrate how software intensive system helps achieving actor/stakeholder goals
     • Place this model in the section where you describe Product perspective
     • The model must be consistent with respect to the overall specification
     • The model should be called according to the context, which will be represented in the model (it should not be called as “i* diagram” or “dependency model” or similar)

For both tasks use – i* modelling language.

Define only strategic dependency model (you do not need to define strategic rationale model)
3: System goal modelling

- Narrow your scope (e.g., you could use prioritisation activity) by selecting the most important goal of the software intensive system
  - Refine the selected goal to the goal model(s)
  - Explain (1) **why** the system is built, (2) **how** the selected goal is achieved, (3) **how else** the selected goal could be achieved
  - Goal model should illustrate the system **requirements** and **expectations**

- Place this model in the section where you describe **Product functions**
- The model must be consistent with respect to the overall specification
- The model should be called according to the context, which will be represented in the model (it should **not** be called as “**KAOS diagram**” or similar)
Scenario Modelling

• **4**: Create a use case diagram
  • *(Task links to solution of Tasks 2 and 3)*
  • What should your software intensive system do (what functions/features should it have) to satisfy dependencies (identified in Task 2 or identified in Task 3)?
  • Have you previously defined any functional requirements (e.g., features, groups of requirements) what satisfy the identified dependencies? Include these requirements in your **use case diagram**.

• **5**: Define explicit scenarios on how your software intensive system interacts with its actors/stakeholders/users (and/or other components)
  • Fill in 2 use case templates for use cases defined in Task 4
Scenario Modelling

4: Create a use case diagram
   - *(Task links to solution of Tasks 2 and 3)*
   - What should your software intensive system do (what functions/features should it have) to satisfy dependencies (identified in Task 2 or identified in Task 3)?
   - Have you previously defined any functional requirements (e.g., features, groups of requirements) what satisfy the identified dependencies? Include these requirements in your *use case diagram*.

5: Define explicit scenarios on how your software intensive system interacts with its actors/stakeholders/users (and/or other components)
   - Fill in 2 use case templates for use cases defined in Task 4

Apply *use case* graphical modelling language and *use case* templates

Place solutions to this task in the section where you describe *Product functions*.
The models must be consistent with respect to the overall specification.
The model(s) and filled templates should be called according to the context, which will be represented in the models, filled templates *(it should not be called as “Use case diagram” or “Use case template” or similar)*.
Solution-oriented Requirements Modelling

6: **SCOPE** the problem you analyse and select/agree about the most important concerns in your requirements specification

Your goal here should be to identify context for which you define the solution oriented requirements using static (data or structure), behavioral and functional perspectives.

The scope could include (select one!):

1. the glossary of the specification;
2. the most important use case and its filled textual template; or
3. the most important requirements

In your specification – in Section on Specific requirements, include the new subsection where this scope is explicitly explained and rationale on why you define it is given.
Solution-oriented Requirements Modelling

For the selected scope (in 6):

- 7: create a **class diagram**
- 8: create a **state models** (2, for different objects of different classes)
- 9: create a **sequence diagram**

- Place these models in the newly defined subsection
- The models must be consistent with respect to the overall specification
- The models should be called according to the context, which will be represented in the model (they should not be called as “class diagram” or “sequence diagram” or “state diagram” or similar)
Initial requirements specification

Requirements validation

Elicitation Specification

Negotiation

Requirements management (prioritization, traceability, version control)

Requirements modelling

(Goals, Scenarios, Solution-oriented requirements)

Elicitation Specification

Negotiation

Template for req. specification

Initial req. specification

Refined/detailed req. specification

Modelling languages

Problem statement
Initial requirements specification

Requirements validation

Elicitation Specification Negotiation

Requirements management (prioritization, traceability, version control)

Template for req. specification

Modelling languages

Requirements modelling (Goals, Scenarios, Solution-oriented requirements)

Requirements validation

Elicitation Specification

Negotiation

Requirements management (traceability, version control)

Initial req. specification

Refined/detailed req. specification
1. Update traceability model
   • Update traceability properties, update traceability matrix or traceability graph

2. Update version for the requirements document and versions for individual (relevant) requirements

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   • Acquire their requirements specification
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    - To other requirements

- **Version of**
  - specification document
  - individual requirements

- **Traceability model**
  - E.g., where traceability artefacts are *functional, performance, usability, security*, etc. requirements
  - Goal models, scenarios, models of solution oriented requirements