Requirement Engineering

Lecture 0: Organization

Prof. Dr. Benjamin Leiding
Anant Sujatanagarjuna

Team

Prof. Dr. Benjamin Leiding
benjamin.leiding@tu-clausthal.de

M.Sc. Anant Sujatanagarjuna
anant.sujatanagarjuna@tu-clausthal.de

Research Group

- **E**merging **T**echnologies for the **C**ircular **E**conomy → **ETCE**
- Research focus:
  - Intersection of IT and sustainability
  - Circular Economy
  - Self-organized, decentralized and distributed systems
  - Machine-to-Everything Economy (M2X Economy)
- Other courses:
  - Emerging Technologies for the Circular Economy (SS – M.Sc.)
  - The Limits to Growth – Sustainability and the Circular Economy (SS – open for everyone)

Research Group

- Website – Link (work-in-progress)
  - Course material
  - Thesis/project topics
  - Publications
  - Etc.

- Our research in action:
  - ZDF documentary (German) – Link
  - Klartext Preis 2020 (German) – Link

- You want join us? Write us an email!

  → benjamin.leiding@tu-clausthal.de

Course Content

- Core terminology and core tasks of requirements engineering
- Requirements engineering process
- Elicitation techniques
- Documentation methods
- Textual, model-based and formal requirements specification
- Requirements negotiation
- Requirements Management
- Traceability
- Requirements validation and quality assurance

Learning Outcome

- Core terminology and core tasks of requirements engineering
- Understanding of the requirements engineering process
- Ability to choose, justify and apply appropriate methods and techniques for each step of the requirements engineering process given project constraints and properties

Learning Outcome

- Core terminology and core tasks of requirements engineering
- Understanding of the requirements engineering process
- Ability to choose, justify and apply appropriate methods and techniques for each step of the requirements engineering process given project constraints and properties

- **What is this course about, what is it not about?**

Disclaimer

- The course modelled and built based on the book „*Requirements Engineering – Fundamentals, Principles and Techniques* (2010)” from Klaus Pohl
- Special thanks to Prof. Dr. Steffen Herbold and Dr. Christian Barelt, who provided valuable input in the form of the teaching materials of their requirements engineering courses.

Course Content

<table>
<tr><td colspan="6">Requirements Engineering</td></tr>
<tr><td colspan="4">Requirements Analysis</td><td colspan="2">Requirements Management</td></tr>
<tr><td>Elicitation</td><td>Negotiation</td><td>Documentation</td><td>Validation</td><td>Change Management</td><td>Tracing</td></tr>
</table>

Lecture Plan

- Block course: 21.02.2022 – 25.02.2022

- Lecture 0 (L00) → Organization
- Lecture 1 (L01) → Introduction
- Lecture 2 (L02) → System Context Boundaries
- Lecture 3 (L03) → Elicitation
- Lecture 4 (L04) → Documentation
- Lecture 5 (L05) → Negotiation
- Lecture 6 (L06) → Validation
- Lecture 7 (L07) → Management
- Lecture 8 (L08) → Traceability
- Lecture 9 (L09) → Tool Support

Exercises

- 21.02.2022 → Exercise 01 – Knowledge Test (MC)
- 22.02.2022 → Exercise 02 – Elicitation
- 23.02.2022 → Exercise 03 – Agent-oriented Modelling
- 24.02.2022 → Exercise 04 – Colored Petri Nets
- 25.02.2022 → Exercise 05 – Management and Traceability (MC)

Times

- Lectures (BBB – Link)
  - 10:00 – 11:30
  - 13:00 – 14:30
- Exercise (BBB – Link)
  - 15:00 – 16:30 → Q&A or specific tutorials

Lectures

- Organization of the lectures:
  - Slide will be uploaded to StudIP
  - Future iterations of the slide set will also be available in our research group Github repository (Link) and on our website (Link) → (work-in-progress)
    - Please report bugs ;)
  - Lectures and exercises as live stream
  - Unfortunately, no recordings this semester
  - Exercise time slots = Time for questions and eventual tutorials related to the exercises

Exercises

- Organization of the exercise:
  - Individual work → no group submissions
  - Multiple-Choice or practical tasks
  - 24h to 7 days to submit the exercise (depending on the task)

Exercises

- Organization of the exercise:
  - Individual work → no group submissions
  - Multiple-Choice or practical tasks
  - 24h to 7 days to submit the exercise (depending on the task)

More info on points, percentages, etc. follow on the next slides (Examination)

Examination

- Prerequisite for admission to the final exam (all criteria have to be fulfilled):
  - Successful completion of the compulsory five exercises
    - You pass an exercise if you score 50% (or more)
    - You have to submit every exercise

- Final exam:
  - No Specific date yet
  - Either written exam (120min) **or** oral examination (20-25min)
  - Online vs. lecture room examination → depends on the pandemic and the number of students

Examination

- Prerequisite for admission to the final exam (all criteria have to be fulfilled):
  - Successful completion of the compulsory five exercises
    - You pass an exercise if you score 50% (or more)
    - You have to submit every exercise

- Final exam:
  - No Specific date yet
  - Either written exam (120min) or oral examination (20-25min)
  - Online vs. lecture room examination → depends on the pandemic and the number of students

We will announce the examination format on Wednesday (23.02.2022)

Self-Study Star

Self-Study Star → 

- Slides with the self-study star indicate optional/additional study material that is **not** mandatory but could be helpful for your future career
- Of course it won’t hurt to have extra knowledge to impress us during the examination ;)

Literature

- This course is not based on a single book and you **do not** need to buy a book to pass the exam.

- K. Pohl. *Requirements Engineering – Fundamentals, Principles and Techniques* (2010).
- K. Pohl, C. Rupp. *Requirements Engineering Fundamentals: A Study Guide for Requirements Engineering Foundation Level* (2011).
- J. Dick, E. Hull, K. Jackson. *Requirements Engineering (4th Edition)* (2017).
- Chris Rupp et al. *Requirements Engineering und Management – Das Handbuch für Anforderungen in jeder Situation (7th Edition)* (2021).

Questions?