Requirement Engineering

Lecture 0: Organization

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Team

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Research Group

- **E**merging **T**echnologies for the **C**ircular **E**conomy → **ETCE**
- Research focus:
  - Intersection of IT and sustainability
  - Circular Economy and Circular Societies
  - Self-organized, decentralized and distributed systems
  - Localized and resilient food production → watch our mushrooms! (Link)
- 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

- 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

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 Bartelt, 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>
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Lectures

- 26.10.2022 → No lecture
- 02.11.2022 → Organization (L00) + Introduction (L01)
- 09.11.2022 → System Context Boundaries and Types of Requirements (L02)
- 16.11.2022 → Elicitation – Part 1 (L03)
- 23.11.2022 → Elicitation – Part 2 (L04) and Negotiations (L05)
- 30.11.2022 → Documentation – Introduction (L06)
- 07.12.2022 → Documentation – Textual Requirements Specification (L07)
- 14.12.2022 → Documentation – Model-based Requirements Documentation (L08)
- 21.12.2022 → Documentation – Formal Requirements Specification (L09)
- 11.01.2023 → Validation (L10)
- 18.01.2023 → Traceability (L11)
- 25.01.2023 → Requirements Management (L12) and Tool Support (L13)
- 01.02.2023 → No lecture
- 08.02.2023 → Exam Q&A

Exercises

- 09.11.2022 → Exercise 01 – Knowledge Test (MC)
- 23.11.2022 → Exercise 02 – Elicitation I
- 30.11.2022 → Exercise 03 – Elicitation II
- 14.12.2022 → Exercise 04 – Agent-oriented Modelling
- 21.12.2022 → Exercise 05 – Coloured Petri Nets I
- 11.01.2023 → Exercise 06 – Coloured Petri Nets II
- 18.01.2023 → Bonus Task
- 25.01.2023 → Exercise 07 – Management and Traceability (MC)

Course Organization

- Organization of the lecture:
  - Slides are available via Github (Link)
    - Please report bugs!
  - Lectures and exercises live stream (BBB – next slide) and Goslar
  - No lecture recordings
  - Exercise time slots = Time for questions and eventual tutorials related to the exercises

Questions? Write us an email: etce-re@tu-clausthal.de ← **We will only respond to emails written to this specific email address!**

Dates/Times/Locations

- Lecture:
  - Wednesday **2:15 pm to 3:45 pm** (Berlin time) – **02.11.2022** to **08.02.2023**
  - Location: Goslar Gotec (Am Stollen 19 C, 38640 Goslar, Germany) or via BigBlueButton (Link)

- Exercise / Q&A:
  - Wednesday **4 pm to 5:30 pm** (Berlin time) – **02.11.2022** to **08.02.2023**
  - Location: Goslar Gotec (Am Stollen 19 C, 38640 Goslar, Germany) or via BigBlueButton (Link)

Exercises

- Organization of the exercise:
  - Individual work → **no** group submissions
  - Multiple-Choice or practical tasks
  - 7-14 days to submit (depending on the task)
  - Submission deadline is always Wednesday at 1:59pm (right before the next lecture)
  - **Submission of each exercise is mandatory**

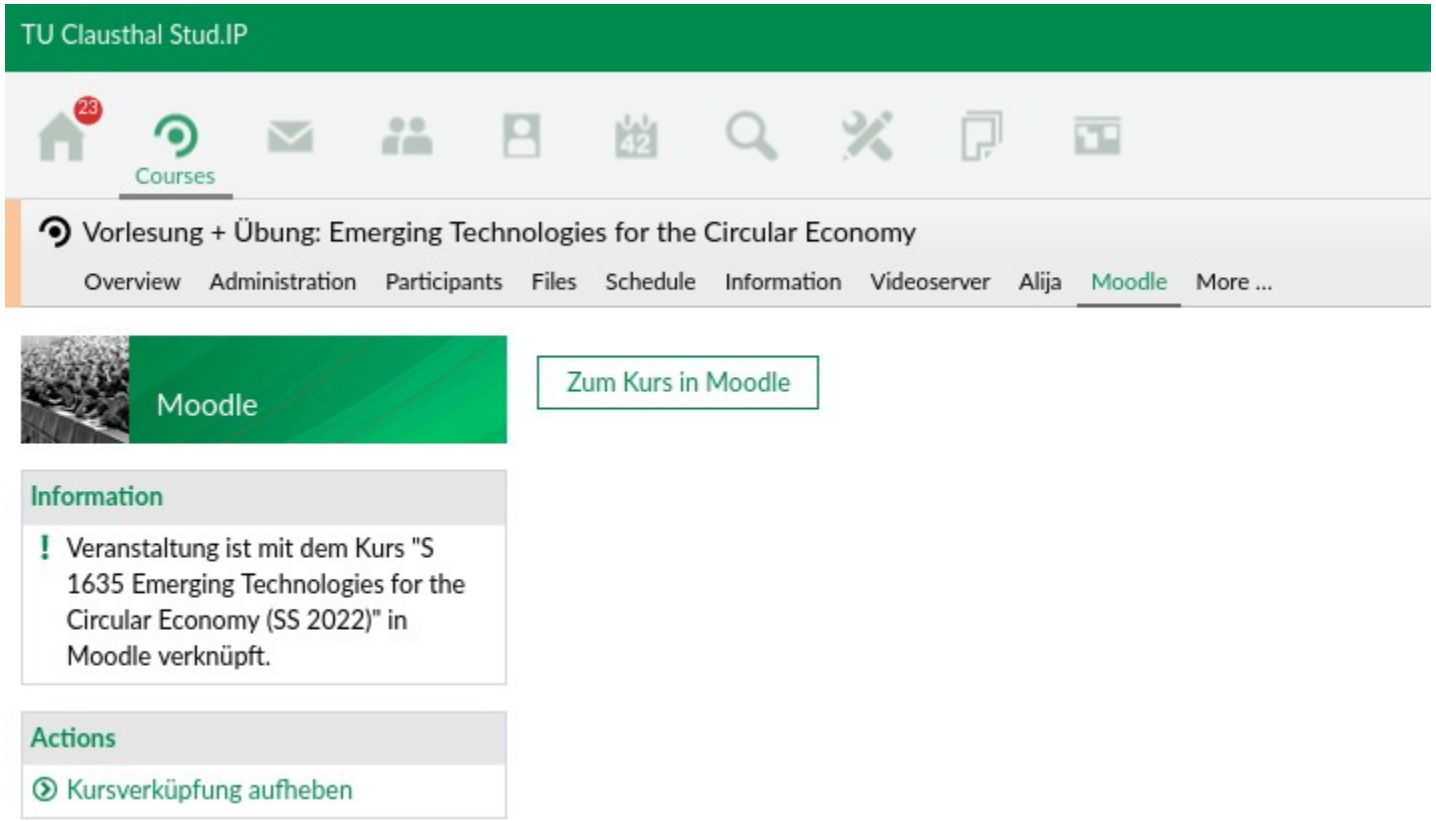
Exercises

- Bonus task:
  - You may miss/fail one of the regular exercises
  - Submitting **AND** passing the bonus task substitutes the missed/failed exercise
  - **Bonus task will be very difficult** → don’t “plan” with the bonus task. Rather submit and pass the regular exercises.

Multiple-Choice Exercises

TODO – Update images

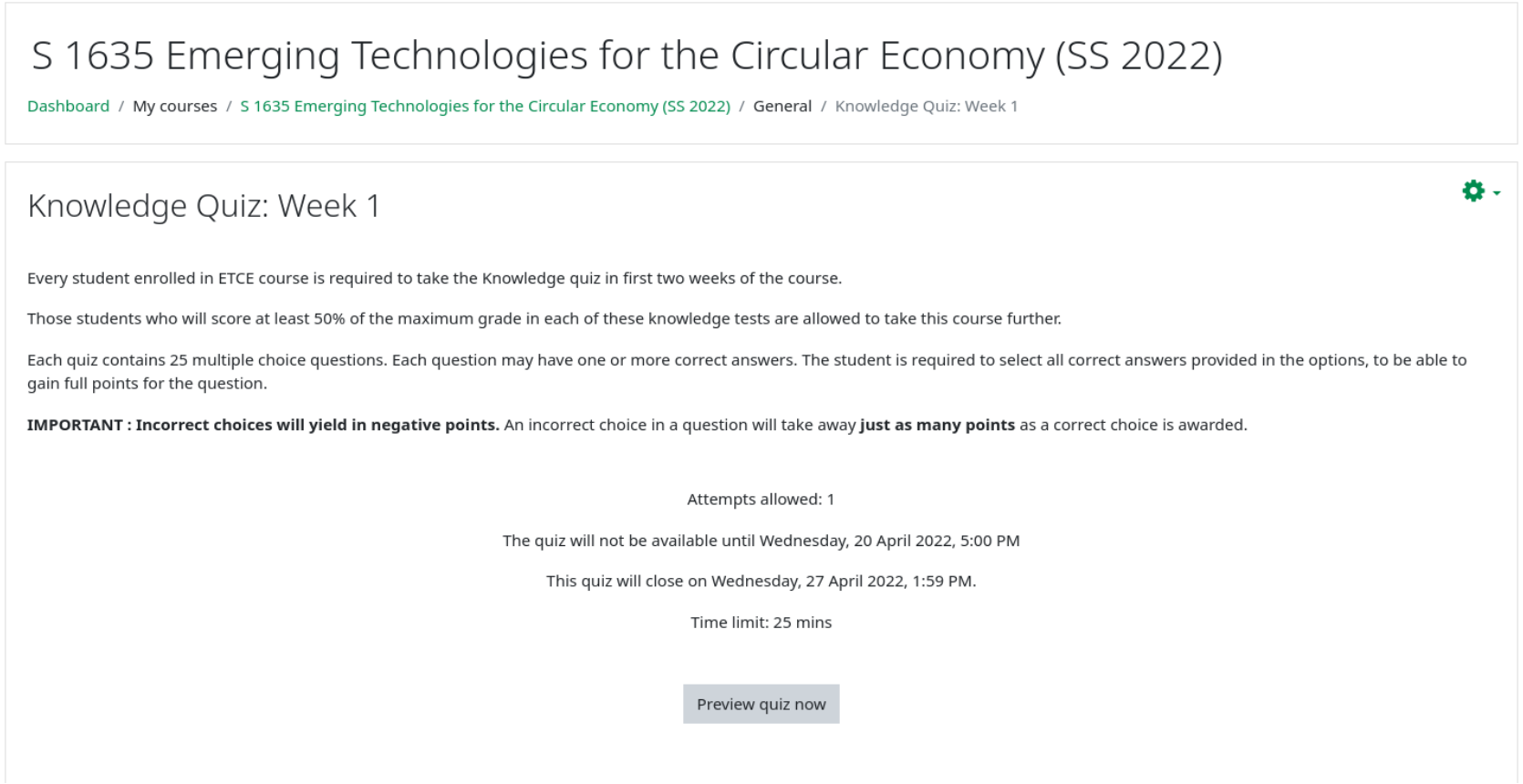
Step-1: Navigate to Moodle on your studip, select "Zum Kurs in Moodle"



Multiple-Choice Exercises

TODO – Update images

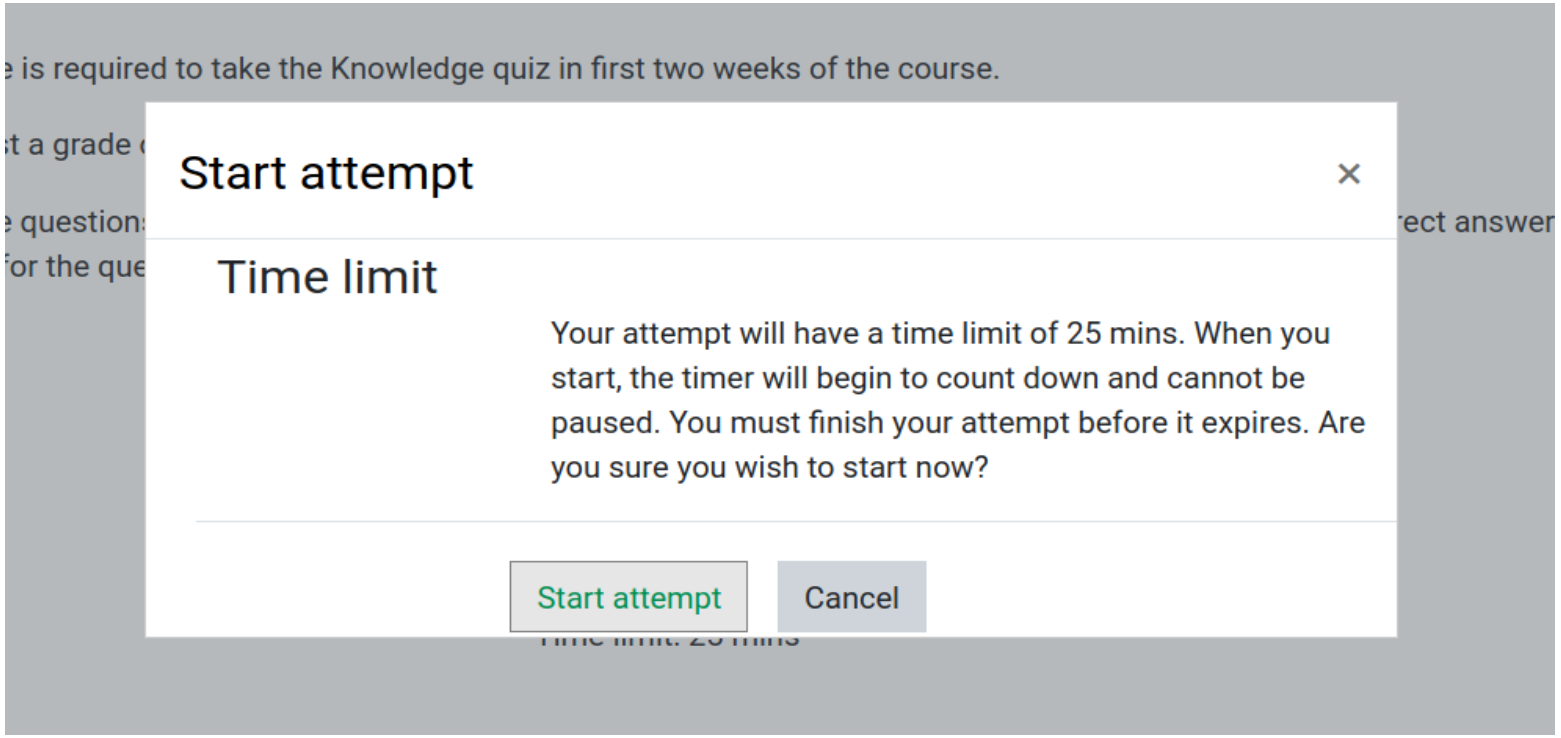
Step-2 : Select "Knowledge Quiz - Week 1"



Multiple-Choice Exercises

TODO – Update images

Step-3 : Start your test if you are ready



Multiple-Choice Exercises

TODO – Update images

Step-4 :

A. Sequence of questions
B. Timer running for the test
C. Navigate to next question/Finish attampt
D. Navigate to previous question

Examination

- **Prerequisites** 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:**
  - 22.02.2023 → 14:00 – 16:00
  - Written exam (120min)

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?