**Syllabus**

**Doctoral Course: Design Science Research**  
**Winter Semester 2020/2021**

**Course Description**
Information and communication technologies (ICT) have transformative impact on businesses and society. Organizations, individuals and the entire society are challenged with the effective design, delivery, use, and impact of ICT. The information systems (IS) discipline addresses these challenges and investigates the phenomena that emerge when the technological and the social system interact (Lee, 2001).

Design science research (DSR) is a research paradigm that received growing attention in the last decade in the IS field. Design science research provides answers to questions relevant for real-world problems via scientifically grounded creation of innovative solutions. Design knowledge is about means-end relationships between problem- and solution spaces (Venable, 2006). DSR contributions can appear in very different forms, such as as the situated implementation of an artifact in the form of software instantiations, constructs, models, methods (Hevner et al., 2004) or a design theory (Gregor & Hevner, 2013).

**Course Objectives**
The course intends to introduce PhD students to the field of DSR in IS. It wants to provide insights into multiple perspectives of DSR, e.g., the theoretical foundation of DSR, the different contributions of DSR as well as methodologies and activities to conduct DSR. With this knowledge, students will be enabled to assess the rigor and relevance of DSR in general, but also be prepared to plan and execute their own DSR projects successfully.

**Learning Objectives**
- Understand DSR as a research paradigm and its positioning in the IS field
- Explore different types of knowledge and contributions delivered by DSR
- Understand generic and specific DSR processes
- Setup a small DSR project in a team effort and get hands-on method know-how in the major DSR activities of problem analysis, artifact creation and evaluation
- Know selected templates & tools that can support executing DSR projects
- Learn best practices for publishing DSR

The course will be complemented with group exercises. Specifically, the goal of the exercises is to analyze the problem, deliver a solution, and propose an evaluation concept for the UN Sustainable Development Goal 12 ([https://sustainabilitydevelopment.un.org/sdg12](https://sustainabilitydevelopment.un.org/sdg12)) of responsible consumption and production. Specifically, we will focus on designing an artefact to support individuals in reducing food waste on the consumer side.

**Course Requirements**
The course is offered by the Institute of Information Systems and Marketing (IISM) at the Department of Economics and Management of KIT. It is designed for doctoral students in the IS field. However, doctoral students from other disciplines (e.g. management, marketing, computer science) are also welcome.

**Grading**
Each participating student is required to read a set of assigned papers in advance and watch the recorded lectures in advance. It is expected that a 1-page document is delivered in advance as a pre-assignment. Phd students are expected to contribute actively in the three sessions in the group work and the discussions of the content. Phd students work in randomly assignment teams, deliver three group deliverables for a joint DSR project and present their results to the class. Overall, the grading is composed of the individual pre-assignment (10%), the three group deliverables (80%), and individual participation (10%). Pls. upload the 1-page document by December 9th 7 PM and the three group presentations by December 11th 7 PM the latest on ILIAS.

Registration and Organization
Please register via sending an email to Sabine Schneider (sabine.schneider@kit.edu) by November 30th the latest. The lecture will take places online using ZOOM. All questions regarding content, organization, and certificates are answered by the lecturer Alexander Maedche (alexander.maedche@kit.edu).

Course Materials
Course material is provided in the form of a recorded foundational lecture with the presentation slides and a list of pre-reading papers. Furthermore, each session is accompanied with a dedicated slide deck that is also shared with the students. The design research books by Hevner and Chatterjee (2010), Vaishnavi and Kuechler (2007) as well as vom Brocke, Hevner and Maedche (2020) represent a valuable addition to the class.

Course Outline
The course is executed in a virtual format. It consists of a self-preparation session and three interactive sessions with group work.

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<thead>
<tr>
<th>Session</th>
<th>Time</th>
<th>Description</th>
<th>Deliverables</th>
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<tbody>
<tr>
<td>Self-Preparation Session</td>
<td>Nov 30th – Dec 9th</td>
<td>- Pre-Readings</td>
<td>- Pre-Assignment Deliverable (1 page document summarizing pre-readings and recorded lecture)</td>
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<td>- Recorded Lecture “Foundations of DSR“</td>
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<td>Session 1 – Problem Space</td>
<td>Dec 10th, 9 – 12.30</td>
<td>- Online Lecture Introduction to Group</td>
<td>- Group Presentation Deliverable (pdf document)</td>
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Session 1 – Problem Space
https://kit-
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<tr>
<th>Session 2 – Solution Space</th>
<th>Work</th>
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| https://kit-lecture.zoom.us/j/65627265018 | - Online Lecture  
- Group Work  
- Group Presentations  
- Reflection | - Group Presentation Deliverable (pdf document)  

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<th>Session 3 – Evaluation &amp; Write Up</th>
<th>Work</th>
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| https://kit-lecture.zoom.us/j/66049395706 | - Online Lecture  
- Group Work  
- Group Presentations  
- Reflection  
- Summary & Recap | - Group Presentation Deliverable (pdf document)  

References


Pre-Readings