



Chair of Information Systems -
Innovation & Value Creation



Friedrich-Alexander-Universität
Fachbereich Wirtschafts- und
Sozialwissenschaften | WiSo

Designing Technology (DT)

Module 57074

Syllabus

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Winter Term 24/25

www.wi1.fau.de | Lange Gasse 20, 90403 Nürnberg

Case Partner:

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www.wi1.fau.de

Course Overview

Course Name: Designing Technology (DT) (57074)
→ link to [CAMPO](#)
→ link to [Wi1 website](#)

Degree Programs:

- International Information Systems
- Maschinenbau
- Medizintechnik
- Wirtschaftsingenieurwesen
- Wirtschaftsmathematik

Chair: Prof. Dr. Kathrin Möslein

Lecturers: [Julius Kirschbaum](#) | julius.kirschbaum@fau.de
[Joni Riihimäki](#) | joni.riihimaeki@fau.de

Locations:

Kick-Off:
Room LG 0.141, Lange Gasse 20, 90403 Nuremberg

Lectures and Mid-Term Presentations:
Room LG 0.141, Lange Gasse 20, 90403 Nuremberg

Final Presentation:
tba.

Session	Date	Time
Session I <i>Course Kick-Off & Case Introduction</i>	14.10.24	13:15 – 15:00
Session II <i>Case Presentation by Project Partner & Lecture</i>	28.10.24	13:15 – 14:45 15:00 – 16:30
Session III <i>Lecture & Exercise</i>	04.11.24	13:15 – 14:45 15:00 – 16:30
Session IV <i>Lecture & Exercise</i>	11.11.24	13:15 – 14:45 15:00 – 16:30
Session V <i>Lecture & Exercise</i>	18.11.24	13:15 – 14:45 15:00 – 16:30
Session VI <i>Lecture & Exercise</i>	25.11.24	13:15 – 14:45 15:00 – 16:30
Session VII <i>Mid-Term-Presentation</i>	09.12.24	13:15 – 14:45 15:00 – 16:30
Session VIII <i>Final Presentation of Research Project</i>	24.02.25	13:15 – 16:30
Hand-In for Written Assignment	17.03.25	23:55

Note: All sessions are mandatory!

Type of Interaction:

- Designing Technology is a **small course** with about 30 students.
- This course is brought to you **on-site and in virtual sessions**.

- The course has a **lecture-guided format with a project-based application** of learnings.
- The course is structured by **synchronous** lectures once a week, in which key concepts for successful completion of the course will be explained.
- In addition, **knowledge bites** are **provided online**, which need to be absorbed asynchronously and will then be discussed during the synchronous lectures.
- Moreover, students will be divided into teams to work on projects. Here you will be able to work **asynchronously**, meaning the timing of the completion of tasks is at your own disposal and only needs to be coordinated within your team and with your mentors from our industry partner.
- Solution development sessions are offered on demand virtually or **in person** at WiSo (Lange Gasse 20).

The course covers the process of designing innovative artefacts to extend human as well as organizational capabilities and to solve problems within organizations and industries.

For a sound understanding of both social and technological aspects of various innovative technologies, students will primarily follow the design science research method, build artefacts and evaluate them, around a given theme. Understanding the design science paradigm and its application will enable students to develop knowledge of the management and use of information technology for managerial purposes and effectively communicate this knowledge.

Content Description:

Students will also be introduced to innovative technologies in the context of artificial intelligence and augmented reality that can link and enable different types of innovative technologies across the boundaries of socio-technical systems. Students will adopt this knowledge in practical work on design problems, which will be related to the usage of robotic process automation.

They will also be introduced to social and technological theories and literature such as design theory, systems theory, communication theory and basics of open innovation and user innovation. Students will use this knowledge on current technologies and theory to work on a (design science) project that solves human or organizational problems.

The course requires analytical thinking, where students can identify and clearly articulate problems that they would like to solve and the process of solution-finding. While existing technical knowledge from students is welcome, it is not a prerequisite for the course. Students can also contribute by conducting theoretical/empirical research, along with developing IT artefacts. To conclude, the course offers a balance between creativity and scientific thinking, which can

be of immense help to students seeking to learn either skill or both.

Core objectives:

Students are able to ...

- ... self-organize into agile project teams and subsequently establish them. These teams oversee the project's execution and adhere to standard procedures.
- ... implement techniques from the Design Science Research (DSR) paradigm and complete a development process in accordance with their requirements. As a result, they may provide digital solutions that are applicable to socio-technical issues and based on solid scientific evidence.
- ... consider the unique characteristics of data-driven technologies and can identify and design these as socio-technical systems. Specifically, they are be able to integrate the unique characteristics of AI and RPA into their initiatives and place the subjects within the framework of digital transformation.

Literature: We use three different kinds of materials: (1) lecture slides, (2) input from case partner and (3) scientific articles

Group Size: The course is designed for a maximum of 30 participants.

Registration Dates:

Earliest	Latest
18.09.2024 - 00:00	21.10.2024 – 13:15

StudOn: [Link to course](#)

[Link to join course](#)

Registration Process

- After applying for participation on StudOn to the course you are placed on the waiting list.
- Everyone can join the Kick-Off meeting, whether you are registered for the StudOn course or not.
- After the Kick-Off, you have ONE week to decide whether you want to take the course. A link to the final registration will be shared during the Kick-Off.
- In case more than 30 students want to take the course, a random sample of 30 participants will be selected.

Exam Registration:

Fixed registration period
18.11.24 – 08.12.24

Examination: The course grade will be determined based on the following mode of evaluation:

- Research Project (50%) (partly group work) (70742)
- Written Assignment (50%) (partly group work) (70741)

	Research Project	Written Assignment
Examination Dates: (Deadlines)	24.02.2025 - 13:15 via upload on StudOn in-class examination	17.03.2025 - 23:55 via upload on StudOn hand-in
Participation Requirements:	<ul style="list-style-type: none"> ▪ Solid command of English (all lectures and content will be in English) ▪ This class demands the continuous participation in the on-site and virtual class discussions, as well as the participation of the mid-term and final presentations. 	
Credit Points / Contact Hours:	5 ECTS	
Reading: (Recommended)	<ul style="list-style-type: none"> ▪ Fichman, R., Dos Santos, B., & Zheng, Z. (2014). Digital Innovation as a Fundamental and Powerful Concept in the Information Systems Curriculum. MIS Quarterly: Management Information Systems, 38, 329–353. ▪ Hevner, A.R., March, S.T., Park, J., Ram, S., 2004. Design Science in Information Systems Research. MIS Q. 28, 75–105. ▪ Kroes, P. (2010). Engineering and the dual nature of technical artefacts. Cambridge Journal of Economics, 34 (1), 51–62. Hevner, A. R., March, S. T., Park, J. & Ram, S. (2004). Design Science in Information Systems Research. MIS Quarterly: Management Information Systems, 28 (1), 75-106. ▪ Peffers, K., Tuunanen, T., Rothenberger, M.A., Chatterjee, S., 2007. A Design Science Research Methodology for Information Systems Research. J. Manag. Inf. Syst. 24, 45–78. ▪ The PMBOK® Guide - A guide to the Project Management Body of Knowledge, 	
Notes:	<p>This course will be managed via the e-learning platform StudOn. All lecture slides and reading materials will be deposited here.</p> <p>Required case reading will be communicated via e-Mail to all class participants before the first lecture.</p> <p>This course involves a case-based competition.</p>	
Use of writing assistance:	<p>Any use of assistance for the review or correction or texts for any of the exams is to be clearly indicated. The use of text generation applications is strictly prohibited.</p>	

Plagiarism:

What is plagiarism?

- Plagiarism is the unauthorized use or close imitation of the language and thoughts of another author and the representation thereof as one's own original work

There is a zero-tolerance policy for plagiarism!

- Each assignment will be checked for plagiarism using a variety of methods
- Any case of plagiarism will be reported to the board of examiners

Consequences of plagiarism

- The final grade will be a 5.0
- The paper containing suspected plagiarism will be forwarded to the board of examiners, who will decide about further consequences. Plagiarism is a serious offence that can lead to severe consequences like a removal from the register of students