Interactive Systems Engineering (ISE)

Thiago Rocha Silva (trsi@mmmi.sdu.dk)
Associate Professor

Short Bio

Thiago Rocha Silva
Associate Professor

- Ph.D. in Computer Science, University of Toulouse III – Paul Sabatier, France.
- Research Area: User-Centered Software Engineering.
- Previous research positions in Brazil, France, Japan, Norway, Netherlands, and Ireland.
- More than 5 years of experience in industry working on the development of e-government systems.
- Lecturer in Computer Science and Software Engineering since 2007.
- Joined SDU in 2021 as an Associate Professor of Software Engineering.

What about you?

Prerequisites

- Fundamentals of Software Engineering
- Interaction Design (Human-Computer Interaction)

Syllabus

- User-centered design and agile software development
- Scenario-based and behaviour-driven development
- Model-based engineering of interactive systems
- Task analysis and modelling
- Cognitive and human-error aspects when designing interactive systems
- Consistency assurance between requirements and user interface design artefacts
- Automated testing of graphical user interfaces
- End-user development

Learning Outcomes

Knowledge:

- On successful completion of this course, students will be able to explain and discuss:
  - ❖ How user-centered design can be part of an agile development process
  - ❖ Techniques for scenario- and model-based engineering of interactive systems
  - ❖ Methods and tools for analyzing and modelling user and system tasks
  - ❖ Methods and tools for assessing user interface design artefacts
  - ❖ Strategies for allowing end-user development of interactive systems

Learning Outcomes

Skills:

- On successful completion of this course, students will be able to:
  - ❖ Apply user-centered design and agile methods for engineering interactive systems
  - ❖ Specify and design testable user requirements for interactive systems
  - ❖ Carry out task analysis and modelling of interactive systems
  - ❖ Assess the consistency of user interface design artefacts

Learning Outcomes

Competences:

- On successful completion of this course, students will be able to:
  - ❖ Employ scenario- and model-based techniques for engineering and assessing interactive systems
  - ❖ Recognize and respond to the user needs when designing interactive systems
  - ❖ Devise strategies for empowering end users to design and/or customize interactive systems

Class Times and Course Organization

- **Fridays** from 01/09 to 08/12 (Weeks 35-49).
- **Monday**, 04/12 (Week 49).
  - ❖ Room: please, check on ITSL.
- Mix of **lectures** and **group work supervision** (project-based learning).
- We expect each student to dedicate **at least 140 hours** throughout the course (5 ECTS).
- **Final group presentations**: Friday (08/12).

Schedule

Day	Date	12:15 – 13:15	13:30 – 14:30	14:45 – 15:45 (16:00)
1	01/09	L1. Introduction to the course and group organization	E1. Topic discussion and agreement (15 min. per group)	
2	08/09	L2. Review of key HCI concepts, theories, and models	L3. Review of user-centered requirements engineering techniques	L4. Task analysis and modelling
3	15/09	L5. Cognitive and human-error task modelling	E2. Group work supervision (15 min. per group)	
4	22/09	L6. End-user development	L7. Low-code development	L8. Low-code development and generative AI
5	13/10	E3/E4. Group work supervision (20-25 min. per group)		
6	03/11	E4/E5. Group work supervision (20-25 min. per group)		
7	10/11	L9. Interactive systems design processes	E6. Group work supervision (15 min. per group)	
8	17/11	L10. Consistency assurance between requirements and UI artefacts	E7. Group work supervision (15 min. per group)	
9	24/11	L11. GUI evaluation and automated testing	E8. Group work supervision (15 min. per group)	
10	01/12	E9/10. Group work supervision (20-25 min. per group)		
11	04/12	E10/11. Group work supervision (20-25 min. per group)		
12	08/12	L12/E12. Final group presentations (15-20 min. per group)		

Modus operandi: Reading

- A **reading list** is made available for each topic covered in class.
- Highlighted readings indicate the most important (core) material for the topic in question.
- You should strive to read the material **before** the lecture about that topic.
- Readings marked as “content review” are a **recap of key HCI concepts** that are prerequisites for this course.
- The reading list will also be helpful for report writing, but **you should also search for additional references**.

Modus operandi: Groups

- The class will be divided into **10-12 groups** of **6 students**.
  - ❖ Groups are encouraged to **mix** Danish and international students.
- **Each group** will work on a **project work** throughout the semester (project-based learning).
- The **material from the project work** (including a report) will be used as the **exam assignment**.

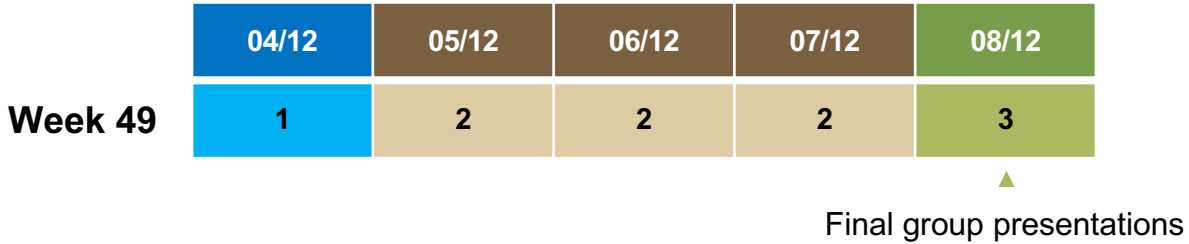
Modus operandi: Communication

- Email **or** direct message on ITSL.
  - ❖ Please, **do not** send both.
- **No fixed office hours** for students. You can just drop by (Ø19-612a-2).

Modus operandi: **Exam Assignment** (Project Work)

Prompt Engineering Interactive Systems with Large Language Models: An Experience Report

Modus operandi: Peer-Review Activity



1. Report available for peer-review: **04/12 (Monday)**
2. Peer-review period: **05/12 (Tuesday) - 07/12 (Thursday)**
3. Peer-review completed: **08/12 (Friday)**

Questions?

Group Organization and Topic Agreement

1. You should **find the colleagues** you want to work with. Please, remember:
   - ❖ We need **10-12 groups of 6 students**.
   - ❖ Groups are encouraged to **mix Danish and international students**.
   - ❖ You're encouraged to **keep**, as much as possible**, the same group** for the other semester courses.
2. You should **register your group on ITSL**.
3. You should **discuss** with your groupmates about **the interactive system you want to develop** for the project work.
4. You, as a group, should **discuss with me** about the system to be developed and **we must agree upon**.