



Aalto University
School of Science

Major in Software and Service Engineering: Orientation Week Event

The SSE Faculty
August 29th 2023

Schedule

Time	Subject
12:15	Lunch + coffee
13:00	Overview of the SSE major, Prof. Casper Lassenius
13:15	Faculty and student presentations
13:30	Software Engineering Track, Prof. Fabian Fagerholm
14:00	Break
14:15	Service Design and Engineering Track, Prof. Johanna Viitanen, Prof. Marko Nieminen, Mika Nieminen
14:45	Portfolio in SSE course, Jari Vanhanen
15:00	Free discussion with faculty & staff members
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Why Software and Service Engineering

- Megatrends
 - Digitalization of products and services is pervasive throughout industries and society
 - New business models emerge that might revolutionize and/or disrupt existing businesses
 - Lots of money to be made 😊
 - The Internet of things (IoT), will have a significant impact on everything from business to life in general
 - Healthcare
 - New services
 - Artificial Intelligence and Machine learning – it is mostly software!

Peculiarities of the SSE major

- Problems are typically real-world design problems that show characteristics of so-called wicked problems
 - Often ill-defined
 - There are many, possibly equally valuable candidate solutions
 - There are often no “perfect” or single “correct” solution
 - Different stakeholders might have conflicting opinions about the problem or solution
 - You cannot know the solution until you have developed it
 - Sometimes understanding the problem is more difficult than building the solution
- You will learn by doing as well as by reading
 - Significant amount of practical project work
 - Often with real-world customers

Why Software and Service Engineering?

- The world runs on software
 - Economies
 - Societies
 - Health and well-being
- It is crucial that we know how to effectively and efficiently build systems and services based on software

Software and Service Engineering: Tracks

Software engineering

Service design and engineering

Enterprise systems

Courses are based on research done in close collaboration with companies.

CS-E4920 Portfolio in Software and Service Engineering



Casper
Lassenius



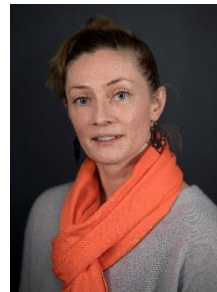
Fabian
Fagerholm



Marjo
Kauppinen



Marko
Nieminen



Johanna
Viitanen



Kari
Hiekkänen

Objectives

- You learn how to
 - Design
 - Develop
 - Manage

... digital products and services that

 - Create value
 - Satisfy user needs and wants

... within modern organizations

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Participants

- Roni Palva-Aho
- Martin Roznovjak
- Maija Pajumaa
- Elias Kauranen
- Tuomas Willberg
- Ali Amaan
- Milla Porttिलाhti
- Tuan Minh Tran
- Marc Aguado

- Basanta Poudel
- Sonja Tervola
- Kaisla Nyblom
- Thi Tran
- Nghi Tran
- Juha Lehto
- Michael Carter
- Oskari Arponen

- Where did you do your B.Sc.?
- Why did you choose SSE?

...and any other students present

Network

- WhatsApp, Telegram
- Volunteer?
 - Do it now! 😊

- Get access to our corridor

[How to get an access token and access rights | Aalto University](#)



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Programming vs Software Engineering

Programming

Mainly individual activity

Main activity: developing code

Specialises in coding

Focus on the software construction part of the software life-cycle

Can include aspects of software engineering

Software engineering

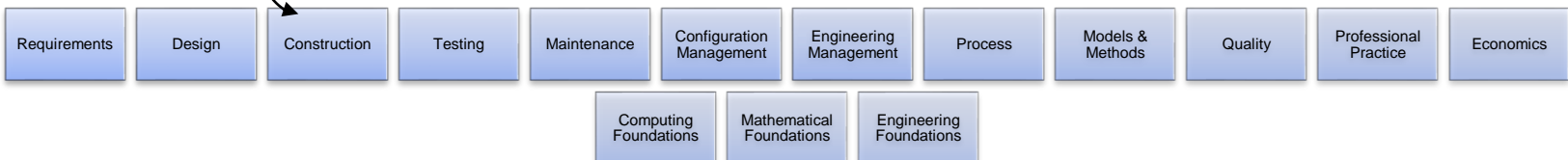
Mainly team activity

Main activity: developing system

Specialises in designing and implementing a whole system

Focus on more than one part of the software life-cycle

Includes aspects of programming



Software Engineering Track

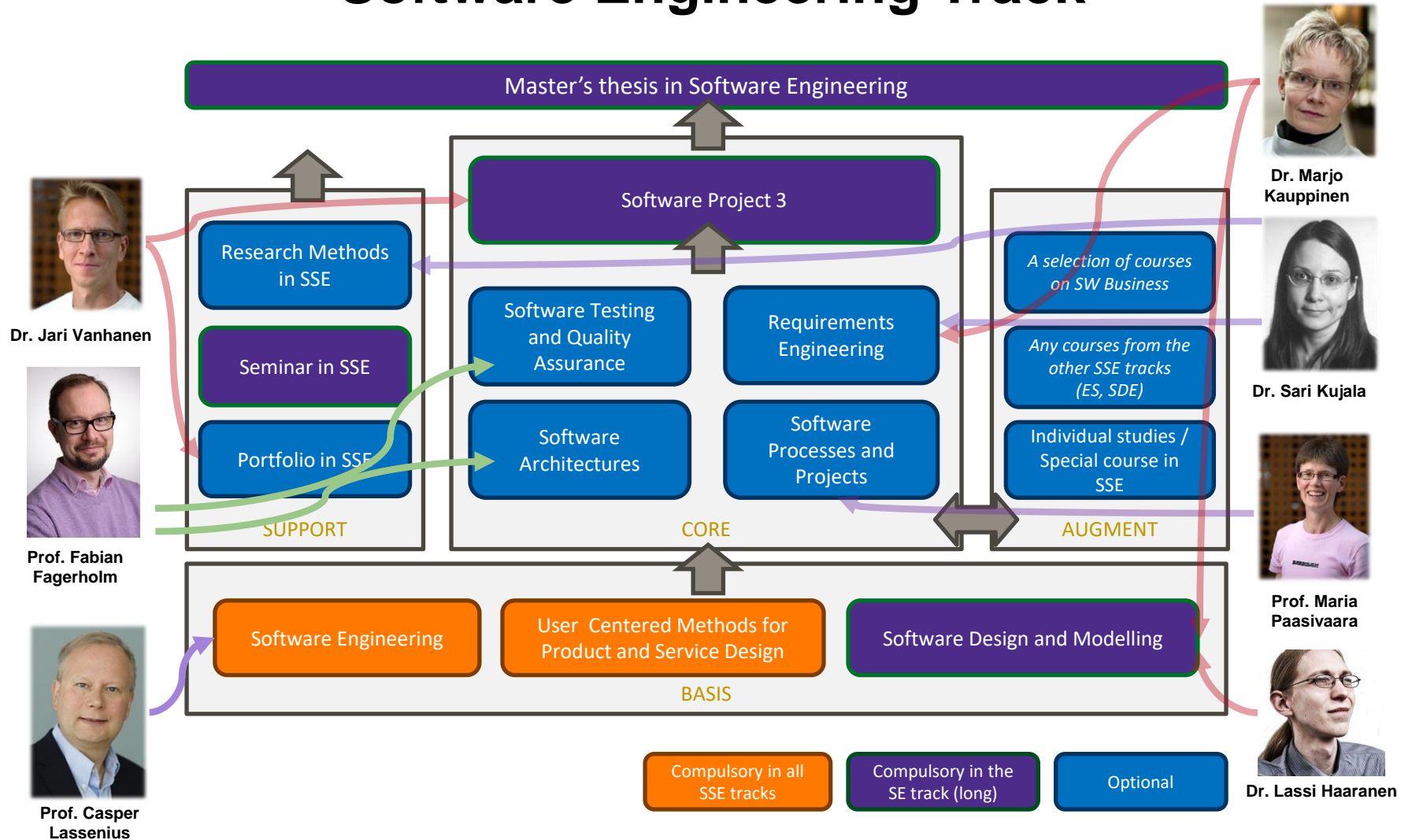
- Focuses on understanding software development in professional contexts
 - Working in and managing teams and organizations
 - Software engineering activities and related methods
 - Requirements engineering
 - Specification and Design (architectures, low-level)
 - Implementation
 - Testing and quality assurance
 - Deployment
 - Traditional and modern approaches
 - Waterfall, Agile, Scrum, XP, Lean, Continuous SE
 - Working with real customers



Why Software Engineering

- There is a large need for software engineering experts in industry
- Most problems in software projects are due to problems related to SE rather than, e.g. technologies
- Many positions, both management, and expert (e.g. architect) are well paid
- Gives a good basis for software entrepreneurship

Software Engineering Track



<https://www.aalto.fi/en/programmes/masters-programme-in-computer-communication-and-information-sciences/curriculum-2022-2024#9-software-and-service-engineering--sse>

Outcome

- Typical SE roles
 - Software developer
 - Software development team leader
 - Tester
 - Architect
 - Quality/test manager
 - Process developer
 - Project manager
 - Product manager
 - Higher level manager
 - Entrepreneur
- Master's theses
 - Typically done in industry
 - Empirical, action research
 - Process improvement
 - Technology introduction
 - (Different kinds of experiments)
 - Data gathering methods
 - Interviews
 - Questionnaires
 - Product / process data
 - ...
 - To prepare for the thesis
 - Research Methods in Software and Service Engineering
 - Seminars to practice reading and writing scientific text
 - Talk about ideas with potential supervisors early
 - Don't worry, others have made it, too ;-)



Questions?

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BREAK 5 min

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Student Questions

- Is it possible to do a minor in data science even if it seems to be intended for bachelor's students?
- I would like to hear more about the CS-E5002 "Special Course in Software and Service Engineering D" course.
 - How can I take this course?
 - What does the course entail?
- I would like to learn more about the master's thesis and what I need to do to prepare for it.
- How about the opportunities to pursue a PhD degree after graduation?