



Aalto University  
School of Science

# Major in Software and Service Engineering: Orientation Week Event

The SSE Faculty  
August 30<sup>th</sup> 2022

# Schedule

Time	Subject
12:15	<b>Overview of the SSE Major, Prof. Casper Lassenius</b>
12:30	Introduction of the new students
13:00	Buffet lunch
13:45	Service Design and Engineering Track, Prof. Marko Nieminen, Prof. Marjo Kauppinen, Prof. Johanna Viitanen, Mika Nieminen
14:05	Enterprise Systems Track, Kari Hiekkänen, Mikko Heiskala
14:25	Break
14:40	Software Engineering Track, Prof. Casper Lassenius, Prof. Fabian Fagerholm, Jari Vanhanen
15:00	Portfolio in SSE course info, Jari Vanhanen
15:10	SSE Student Network, Henri Thor-Touch
15:45	Free discussion with the faculty in two teams
16:00	End of event



# 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!

# 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

# 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



# 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

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

- Anastasiia Tikhonova
- Antti Harju
- Duy Anh Vu (Andy)
- Evelyn Birnzain
- Jaan Taponen
- Jani Mäenpää
- Joel Hämäläinen
- Jonna Mikkonen
- Joonas Uusikivi

- Juan Fuentes
- Jussi Nevavuori
- Lujie Ban
- Matthew Hallonbacka
- Samuli Mannonen
- Thanh Hao Nguyen
- Yifan Hao
- Zhou Changkong

**...and any other students present**

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# 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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**BREAK 5 min**

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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 software life-cycle

Can include aspects of software engineering

## Software engineering

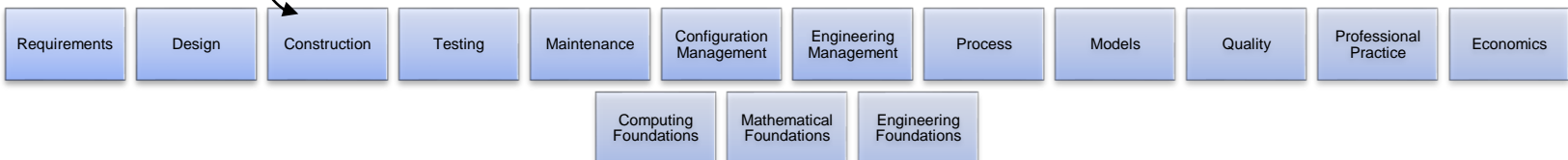
Mainly team activity

Main activity: developing system

Specialises in technical design

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

Includes aspects of programming



# Software Engineering Track

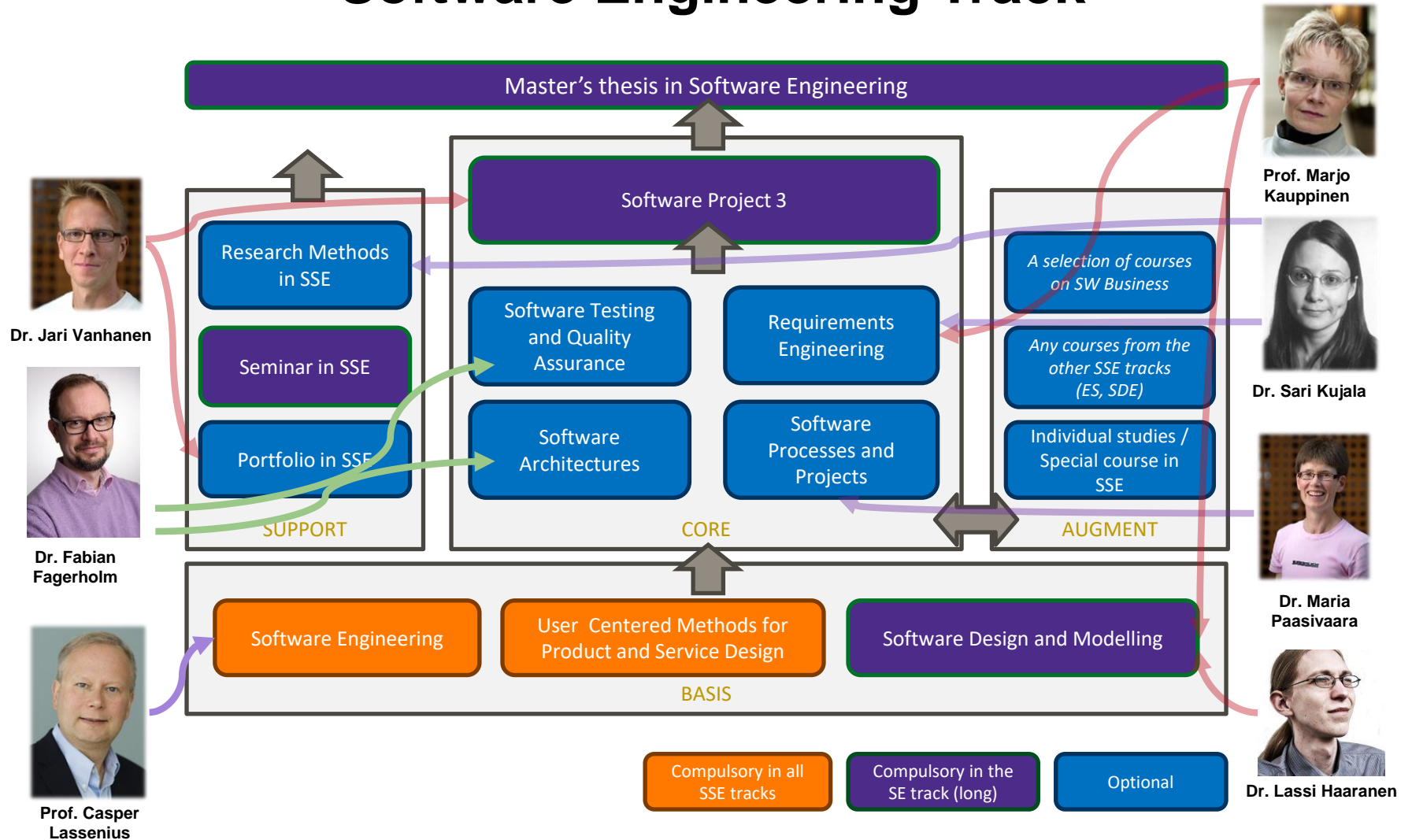
- Focuses on understanding software development in professional contexts
  - Working in and managing teams and organizations
  - Software engineering activities and related methods
    - Requirements engineering
    - Specification and Design (architectures, low-level)
    - Implementation
    - Testing 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 huge 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://into.aalto.fi/display/enccis/Software+and+Service+Engineering+%28SSE%29+2022-2024>

# 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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# Henri Thor-Touch

Topic: SSE orientation and networking

Time: Aug 30, 2022 12:15 PM Helsinki

Join Zoom Meeting: <https://aalto.zoom.us/j/63552023484>

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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 ?

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