



Course	CT10A7061 Visitor's Viewpoint on Software Engineering-Software Engineering for Sustainability, 3 ECTS credits
Year and period	M.Sc. 1 - 2, 31.7 - 4.8.2017
Teacher(s)	Professor Birgit Penzenstadler, California State University Long Beach, US Visiting lecturer, NN
Person(s) in Charge	Professor Jari Porras, LUT
Additional Information	The course topics are related to sustainable development.
Aims	<p>The students will deepen their knowledge in a specific advanced topic in software engineering, learn to question and debate with an expert on the topic, and synthesise the studied material in a written report and/or presentation.</p> <p>The role of ICT in solving the sustainability challenges is increasing all the time. This course will tackle these important aspects and challenge the participants to create their own solutions for the given sustainability problems through software development. The course will emphasise the LUT values in solving tough sustainability problems.</p> <p>After the course, student should be able to:</p> <ul style="list-style-type: none">- Understand the foundations of sustainability and sustainable development and the role of ICT, especially software engineering, in achieving the sustainable future.- Find, describe and analyse a local sustainability challenge.- Design and prototype a solution for the sustainability challenge.
Content	<p>The course approaches core software engineering topics based on Software Engineering Body of Knowledge as well as current trends and technological developments in the discipline or closely related ones from different viewpoints. The course instances are given by visiting scholars.</p> <ol style="list-style-type: none">1. Sustainability foundations<ul style="list-style-type: none">- Sustainability dimensions, Orders of effect, Various application domains, UN SDGs2. SE fundamentals<ul style="list-style-type: none">- SE processes, methods and artifacts, examples3. ICT4S Innovation

	<ul style="list-style-type: none"> - Green IT vs. ICT4S, examples, Change of the perspective changes, principles of decoupling, dematerialization 4. SE4S - RE4S artifacts, system vision, sustainability analysis, goal model, features, 5. Prototyping of the selected challenges 6. Presentations
Modes of Study	<p>Lectures 16h Exercises 24h Assignments 38h</p> <p>Total 78h</p>
Evaluation	<p>Final grade 0-5:</p> <p>Active class participation 20% Assignment 80%</p>
Study Materials	<p>Readings and assignments to be announced in the class.</p>