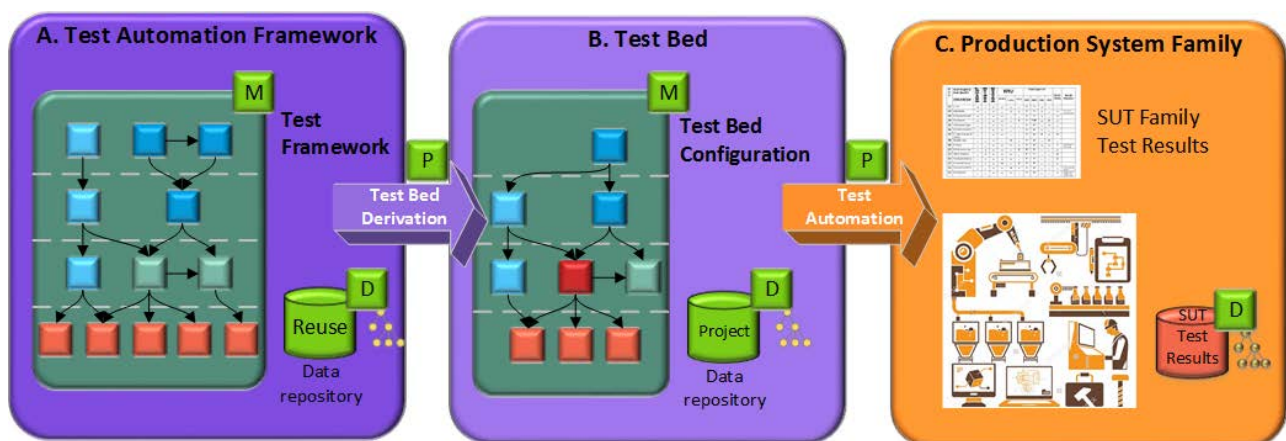| Reference:	**QSE-TAF-VAR**
Topic:	**Evaluation of Methods from Variability Mangement and Software Quality Assurance**
Course-Type:	Seminar, Bakk-Thesis
Start:	As soon as possible
End:	To be defined
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Background:

Testing software and hardware systems in the industry is challenging because of the various technologies using in this field that, furthermore, tend to vary from project to project. Technologies, like OPC UA [1], Mocking [2] and "Behavior Driven Development" [3], allow a certain kind of abstraction on different layers of testing. However, these technologies are often arbitrarily combined without a structured approach. This issue results in, more or less, coordinated solutions for different groups of projects, that are often reused utilizing a "clone-and-own" approach.

In the context of a conceptualization and development of a flexible "Test Automation Framework" (TAF), that takes the variabilities of the different layers of testing into account, this topic aims at examining and evaluating existing means and methods that can be utilized in the research of the TAF.

Tasks:

- Identification and evaluation of literature and methods from variability management and modeling.

- Identification and evaluation of literature and methods from software quality assurance.

Expertise:

For this topic a set of skills is recommended.

- Good skills in English (mandatory)

- Interested in software quality assurance

- Interested in variability management

[1] Leitner, S. H., & Mahnke, W. (2006). OPC UA–service-oriented architecture for industrial applications. ABB Corporate Research Center.

[2] Mostafa, S., & Wang, X. (2014, October). An empirical study on the usage of mocking frameworks in software testing. In Quality Software (QSIC), 2014 14th International Conference on (pp. 127-132). IEEE.

[3] Wynne, M., & Hellesoy, A. (2012). The cucumber book: behaviour-driven development for testers and developers. Pragmatic Bookshelf.