Advanced Software Engineering

Covered syllabus\(^1\) (a.y. 2017/2018)

- **Service-based software engineering** [1]
  - Core interoperability standards (REST, XML, SOAP, WSDL)
  - Software design by service composition (WS-BPEL, syntax & semantics)
  - Business process modelling and analysis (with workflow nets)

- **Cloud-based software engineering** [2-10]
  - Introduction to cloud computing
  - DevOps techniques (TOSCA, Docker, combining TOSCA and Docker, microservices, CICD)
  - Introduction to fog computing

- **Hands-on laboratory** [11]
  - Java 101, GitHub 101, REST, Spring Boot, Heroku, WS-BPEL with OpenESB, workflow nets with WoPeD
  - Docker, TosKer, TosKeriser, Jenkins, fog computing with micro:bit, thingspeak and node.js

References\(^2\)

4. [Docker Documentation](https://docs.docker.com)
8. Thoughtworks. *Continuous integration*.
11. <Slides used in the lab.>

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\(^1\) The syllabus of the “Software Services” course (6 ECTS) does not include the lab topics.

\(^2\) All references are available in the Moodle site of the course.