

Module Description

Cloud Computing

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General Information			
Number of ECTS Credits			
3			
Abbreviation			
TSM_CIComp			
Version			
26.07.2016			
Responsible of module			
Prof. Dr. Thomas Michael Bohnert, ZHAW			
Language			
	Lausanne	Bern	Zurich
Instruction	□E⊠F	\square D \square E \square F	□ D ⊠ E
Documentation	⊠ E □ F	\square D \square E \square F	□ D ⊠ E
Examination	⊠ E ⊠ F	□ D □E □F	⊠ D ⊠ E
Module category			
\square Fundamental theoretical principles -	· FTP		
☐ Technical/scientific specialization module - TSM			
☐ Context module - CM			
Lessons			
☑ 2 lecture periods and 1 tutorial period per week			
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Brief course description of module objectives and content			
Lecture on advanced topics in the domain of Cloud Computing, more precisely covering use, operations, development of and			
for laaS and PaaS, as well as developing applications natively for the cloud.			
Aims, content, methods			
Learning objectives and acquired competencies			
Conceptual understanding of the principles and architectural design of laaS and PaaS services, as well as concrete			
implementations/frameworks.			
Ability to operate and use laaS-frameworks. Ability to operate and use PaaS-frameworks.			
Understanding of laaS and PaaS management APIs.			
Ability to design services and service-oriented applications natively for the cloud.			

Ability to leverage features of the cloud, that is on-demand, self-service, elasticity, multi-tenancy, metered service, broadband network access.

Ability to evaluate the economic, legal and technological advantages of cloud as well as inherent limitations.

Contents of module with emphasis on teaching content

Per week, Lectures two times 45m, Tutorial 45m

- Welcome and CC-Definitions, Principles, Services and Deployment Models
- laaS and Amazon Web Services (AWS)
- DC Architecture
- OpenStack, Architecture, Services, Usage
- Cloud Compute Services Hypervisors and Containers
- Cloud Storage Basic Concepts, Block, File and Object Storage Services
- Cloud Networking Software Defined Networking
- Cloud Security
- PaaS and Google Application Engine (GAE)
- CloudFoundry, Architecture, Services, Usage
- Persistence Services, NoSQL DBaaS
- Continuous Deployment



- Cloud Standards and Interoperability
- Cloud-native Applications / Cloud-based Architecture

Teaching and learning methods

2 Lectures, 1 tutorial session per week

Self-study based on lecture material and literatures (papers, books)

Prerequisites, previous knowledge, entrance competencies

Basic understanding of software and systems engineering, basic usage of Linux, communication technologies/networking.

Literature

Assessment

Certification requirements for final examinations (conditions for attestation)

Nothing / None

Written module examination

Duration of exam: 120 minutes

Permissible aids: 1 A4-Sheet of hand-written notes