

Virtualization and Consolidation

Lecturer: Khazankin Grigoriy

Semester: 3 **Duration:** 18 weeks

Workload (h): 144 **Presence (h + CH):** 64 (8) **Self-Study (h):** 72

Contents: This course rests within the field of the large-scale distributed systems for big data, computing systems, which can handle the storage, processing and networking requirements of big data. Our aim is to explore a vast range of distributed systems including cloud, grid, multi-cluster and volunteer computing systems to handle big data.

Background and relations to other courses: nothing.

Main topics and learning objectives:

Themes	Learning objectives
Distributed computing	To know overall structure of distributed systems and applications (telecommunication networks, computer clusters, volunteer computing).
Distributed operating system, Distributed shared memory	To know overall structure of MOSIX (multicomputer operating system for high performance cluster computing)
Distributed data store	To know overall structure of Apache Hadoop.
Cloud computing	To know basic concepts of Public Cloud, Private Cloud, Hybrid Cloud: Federated Identity in the Cloud. To know cloud application architectures and service models
Grid computing	To know similarities and differences within Cloud computing and grid computing. Service types and related concepts.

Assessment:

Formative: in interaction with lecturer and tutor during learning period.

Summative:

Number and Type; Connection to Course	Duration	Part of final mark in %
Written Exam	90 min	60%
Course Assignments		40

Learning outcomes:

Academic: To know principles of functioning distributed systems, to be able to install Apache Hadoop, to understand concepts of cloud computing.

Prerequisites for Credit Points: The credit points will be granted when the course has been successfully completed, i.e. all parts of the examination are passed.