

Table S2.6.4. Form for the preparation of the course information sheets				
Name of the subject: Distributed data storage systems				
Code of the subject	Status of the subject	Semester	Number of ECTS credits	Class load
	Optional			
Study programme for which it is organized: PhD Program "Sustainable Development" (Computer Science and Informatics)				
Dependency by other subjects: none				
Objectives of studying this subject: The objective of this course is to teach students how to conduct research work in the field of distributed data storage systems.				
Contents of the subject (teaching units, forms of students' individual work, forms of testing) presented per working weeks in the academic calendar:				
Preparatory week				
I week	Introduction to distributed data storage technologies: basic concepts, specific features, types of distributed storage.			
II week	Architectures of distributed data storages: distributed file systems, in-memory storages, decentralized systems, distributed data storages, cloud data storage, homogeneous and heterogeneous distributed databases.			
III week	Data structures (directic acylic graphs, trees, blocks, etc.) used for content storage in distributed environments.			
IV week	Replication, fragmentation, versioning and allocation tecniques.			
V week	Concurrency control and replica control mechanisms in distributed data storages.			
VI week	Challenges of content availability and storage assurance, and reliability of storages in distributed (and decentralized) environments.			
VII week	Security, authorization and integrity control within distributed environments.			
VIII week	Query processing and optimization in distributed data storages.			
IX week	Exploring the usage of existing distributed data storage systems.			
X week	Exploring the open research questions and challenges in relation to distributed data storages.			
XI week				
XII week				
XIII week				
XIV week				
XV week				
Methods of education:				
<ul style="list-style-type: none"> lectures, project assignment. 				
Students' load				
<u>Weekly</u>		<u>In Semester</u>		
		<ul style="list-style-type: none"> Lectures: 60 Individual work: 210 		
Students' obligations during the teaching:				
Literature:				
<ul style="list-style-type: none"> Maarten van Steen & Andrew S. Tanenbaum: Distributed Systems, 3rd Ed., Pearson Education, 2017 Tamer Ozsu & Patrick Valduriez: Principles of Distributed Database Systems, 3rd Ed., Springer, 2011 Ajay D. Kshemkalyani & Mukesh Singhal: Distributed Computing - Principles, Algorithms, and Systems, Cambridge university press, 2008 				

Learning outcomes (complied with the outcomes for the study programme):Knowledge and understanding:

On completion of this course the student will be able to:

- analyse and evaluate distributed data storage systems,
- use the acquired knowledge in practical cases of planning modern information system solutions based on the usage of distributed data technologies and distributed data storage systems,
- participate in research and development in the field of distributed data technologies.

Transferable / Key skills and other attributes:

- Communication skills: written report and oral defence, manner of expression at written and oral examination.
- Use of information technology: understand the role and importance of distributed data storages, compare different systems, develop solutions using distributed data storages.
- Organizational skills: organizing the process of planning, evaluating and implementing information system solutions based on distributed data storages. Role definition and work distribution.
- Problem solving: research and development in the field of distributed data storages.
- Organisation skills: Working in a group: working in interdisciplinary research and development teams.

Forms of tests and evaluation:

- completed project work – 50%
- oral examination – 50%

Name and surname of teacher and associate:

Aida Kamišalić Latifić

Particularities needed to be emphasized for the subject:

Note (if needed):