RĪGAS TEHNISKĀ UNIVERSITĀTE

RTU Course "Storage Networking"

33000 Datorzinātnes, informācijas tehnoloģijas un enerģētikas fakultāte

General data

Code	DE0001
Course title	Storage Networking
Course status in the programme	Compulsory/Courses of Limited Choice
Responsible instructor	Gundars Alksnis
Volume of the course: parts and credits points	1 part3.0 ECTS credits
Language of instruction	LV, EN
Abstract	The course covers concepts, features, design and applications of storage area networking (SAN) including management challenges, requirements, and solutions' advantages and disadvantages. Storage consolidation, management, virtualization, scalability, performance, backup and restore, and replication are explained from the relevance to business continuity and high-availability. The course discusses basic and intermediate level information about intelligent storage solutions. The course also includes such topics as storage network architectures, Fibre Channel and other emerging technologies, and storage networking management applications and their market. After completing the course students can propose and discuss SAN solutions.
Goals and objectives of the course in terms of competences and skills	The goal of the course is to teach knowledge in storage area networking topics. The tasks of the study course: - to develop skills to propose solutions to support business continuity and high-availability; - to discuss the relevance and business value of storage area networking both with business and IT professionals.
Structure and tasks of independent studies	Most of the course's final grade consists of evaluations of independent works, in which students must demonstrate theoretical aspects and practical applications of storage networking technologies.
Recommended literature	Obligātā / Primary: 1. Shu, Jiwu. Data Storage Architectures and Technologies. Springer, 2024. (https://link.springer.com/book/10.1007/978-981-97-3534-1) 2. Tate, J., etc. Introduction to Storage Area Networks. IBM Redbooks, 2018. (http://www.redbooks.ibm.com/abstracts/sg245470.html) 3. Troppens, U., etc. Storage Networks Explained. 2nd Ed., Wiley, 2009. ISBN 9780470741436 (search by ISBN via http://resursi.rtu.lv/login?url=https://site.ebrary.com/lib/rtulv) Papildu / Additional: 1. Information Storage and Management: Storing, Managing, and Protecting Digital Information in Classic, Virtualized, and Cloud Environments, 2nd Edition, Wiley & Sons, 2012. ISBN: 9781118094839. ((search by ISBN via http://resursi.rtu.lv/login?url=https://site.ebrary.com/lib/rtulv)) 2. Wallace, M., Webber, L. Disaster Recovery Handbook. AMACOM Books, 2004. ISBN 9780814428085 (search by ISBN via http://resursi.rtu.lv/login?url=https://site.ebrary.com/lib/rtulv)
Course prerequisites	Students must be comfortable with computer networking topics or must have taken an appropriate course.

Course contents

Content	Full- and part-time intramural studies		Part time extramural studies	
	Contact Hours	Indep. work	Contact Hours	Indep. work
Introduction. Recommended Literature. Introduction to SAN and Data Access. Storage Architectures.	2	4	0	0
Structure of Storage Drives. RAID Technology.	2	6	0	0
Storage Acceleration Techniques. Intelligent Storage Subsystems.	4	8	0	0
File Systems. Logical Volume Managers.	4	8	0	0
I/O Connectivity Techniques. SCSI Protocol. Fibre Channel Protocol. SAN Topologies and Configurations.	2	4	0	0
Network Attached Storage. Network File Systems. Internet Protocol Storage. Storage Virtualization.	4	8	0	0
Network Backup Solutions. Digital Data Archiving.	2	6	0	0
Reasons For and Against SANs. Designing Storage Networking Solutions.	2	4	0	0
Ensuring Business Continuity.	2	6	0	0
Total:	24	54	0	0

Learning outcomes and assessment

Learning outcomes	Learning outcomes assessment methods and assessment criteria
Is able to explain storage networking aims and current restrictions.	Written examination. Criteria: according to the answers provided.
Is able to explain current and emerging SAN concepts and compare their implementations.	Comparison of storage-related technologies and reported presentation. Criteria: according to the aspects evaluated.

Is able to select the most proper technology solution for a specific business problem and discuss it with both business and IT professionals.	Analysed real-world case study with proposition and substantiation of the most suitable solution combination. Criteria: according to the aspects evaluated. Participation in the course activities.
Is able to evaluate alternative data storage networking solutions and choose the optimal one.	Analysed real-world case study with proposition and substantiation of the most suitable solution combination. Criteria: according to the aspects evaluated.

Course tests

Tests	% of final assessment
A report/presentation about a topic of selected technology	30
A report about an analysis of a case study	30
A final examination	20
Activity	20
Total:	100

Course planning

Part	Semester			CP	Academic hours			Tests		
	Autumn	Spring	Summer		Lectures	Practical	Lab.	Test	Exam	Work
1.	*			3.0	12.0	12.0	0.0		*	