

Obuda University John von Neumann Faculty of Informatics		Institute of Applied Informatics		
Name and code: <i>Enterprise Infrastructure in Practice, NAINIISVND</i>		Credits: 2		
<i>Computer Science and Engineering BSc specialty</i>		<i>Full-time, 2022/23 year II. semester</i>		
Subject instructors: Dr. Valéria Póser, Experts from Morgan Stanley				
Prerequisites (with code):		Matematika szigorlat - NAMMS1SAND, Szakmai szigorlat - NAISS1SAND		
Weekly hours:	Lecture: 2	Seminar: 0	Lab. hours: 0	Consultation: 0
Way of assessment:	exam			
Course description				
<p><i>Goal:</i> The course aims to provide students with an insight into the challenges faced by many large organisations today. The challenges of scale (i.e. the challenges of managing and organisation with 100,000 desktops are very different to those managing 100), commercial pricing, managing service quality, managing risk, and working effectively in a global organisation will be discussed. An appreciation for these challenges and how industry is meeting them will be developed via a review of a number of case studies and practical hands on examples. Students completing this course will develop a deep appreciation for enterprise technology.</p> <p>Course description: Enterprise IT Components and Operation; Data Center infrastructure and technologies; Real Time Market Data; Virtualization Technologies in Practice; Scalable High Availability Technologies; Technologies to support ITIL; Performance Optimization; Web Technology and Security; Enterprise Networks; Agile development; Data Driven Decision Making; Cloud Technologies in an Enterprise Environment:</p>				

Lecture schedule:	
Education week	Topic
1.	Enterprise IT Components and Operation: Morgan Stanley continuously maintains and operates a huge and complex infrastructure to run the business. This presentation explains the details of building out and manage such large infrastructure. The second part covers some of typical troubleshooting cases one can come across in a complex environment.
2.	Data Center infrastructure and technologies: How we can better optimize Data center infrastructure by going from physical hardware to virtual solutions.
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4.	Real Time Market Data: Real Time Market data is an essential pillar of electronic trading on modern financial markets such as stock exchanges. The presentation will give an overview of what market data means and how technology helps us in delivering market data with low latency to Morgan Stanley's trading systems.
5.	Scalable High Availability Technologies: Enterprise infrastructures needs performance and reliability, usually both. Various solutions are used, this presentation highlights some of the ones used most often, with some practical insight into the advantages and disadvantages.
6.	Technologies to support ITIL: High level overview of ITIL's history, structure, key areas & expressions. Hands-on experiences on implemented tools and practices at global companies (Morgan Stanley / AB InBev / BOSCH / Daimler), most popular applications, business-specific opportunities and challenges.
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8.	Enterprise Networks: This session gives an overview on providing reliable connectivity in a large enterprise to interconnect tens of thousands of servers and desktops across the globe, using state-of-the-art data networking technology.
9.	Web Technology and Security Web Technology and security lecture will cover secure web communication and related technologies, TLS, cypher sets, key exchange methods. Additionally we will cover typical vulnerabilities of web applications like SQL injection and cross side scripting.
10.	Virtualization Technologies in Practice Session overviews the challenges of running thousands of virtual machines, with the aspect of the required software elements, computing resources, storage, networking and managing all of these at that scale.
11.	Performance Optimization Using the best technologies is not a guarantee to get the best performance. It's crucial to declare the exact use case and the finetune everything we can to get the best out of it.
12.	Agile development: The session will cover both the theoretical (providing answers to questions like: what is the agile "mindset"?, what are the typical roles?, what are the rituals of the teams?, etc.) and the practical aspects of implementing agile development practices (New team or already existing? What are the first steps in moving from waterfall to agile? Typical pitfalls in implementing it, etc.)
13.	Data Driven Decision Making: Data Driven Decision Making, Machine Learning & integration to platforms, Data Visualization, Data Modeling and Data Quality, Agile methodology.
14.	Cloud Technologies in an Enterprise Environment: The presentation covers the exec level perspective for Cloud adoption at a large financial institution, touching on the main barriers of cloud adoption, namely the complexity of the current ICT estate, the cost of migration & integration of legacy & on premise systems with Cloud applications, the security and compliance with regulatory requirements plus the incompatibility of internal process & the skills of the internal staff. The second part of the presentation gives a few examples how Morgan Stanley addresses these concerns.
Midterm requirements	
The lectures and the presentations are on English language. The visit of the lectures is obligatory.	
Requirement of the exam: must not miss more than 50% of the lectures.	
Midterm tests	
Education week	Topic
Jelöljön ki egy elemet.	Szöveg beírásához kattintson ide.
Type of replacement	
Type of exam	

Written exam on English language	
Final grade calculation methods	
5:	86-100 %
4:	74-85 %
3:	62-73 %
2:	51-61 %
1:	0-50 %
References	
Obligatory:	
Recommended:	
Szöveg beírásához kattintson ide.	
Other materials:	
Lecture notes (Moodle)	