Advanced web technologies - course description

General	information
General	innormation

General information		
Course name	Advanced web technologies	
Course ID	11.3-WE-INFP-AWT-Er	
Faculty	Faculty of Computer Science, Electrical Engineering and Automatics	
Field of study	Computer Science	
Education profile	academic	
Level of studies	First-cycle Erasmus programme	
Beginning semester	winter term 2019/2020	

Course information

Sourse mornation		
5		
6		
obligatory		
english		
• dr hab. inż. Marek Sawerwain, prof. UZ		

Classes forms

The class form	Hours per semester (full-time)	Hours per week (full-time)	Hours per semester (part-time)	Hours per week (part-time)	Form of assignment
Lecture	30	2	-	-	Credit with grade
Project	15	1	-	-	Credit with grade

Aim of the course

- familiarize students with rules of writing WWW corporation application and network services for Java platform,
- shaping the basic skills in area of design, implementation and deploying WWW applications and network services.

Prerequisites

Basics of Programming, Object-Oriented Programming, Java Language with WEB Technologies, Computer Networks

Scope

Introduction to Java Enterprise Edition standard. Evolution of scalable systems on the Java platform. JEE Application Programming Interface. Information flow on Java Messaging Platform.

Design of multi-tier applications. Integration of JEE elements in scalable applications with remote access. Layer specifications: WEB, business logic built using the Java Beans components, intermediate layer, abstraction layers, data persistence and presentation layer. Presentation of basic design patterns JEE e.g.: extended controller, catching objects, context objects, session Façade, transfer objects, data access objects. Code refactorization. The use of basic Internet protocols in the design of client applications. Popular solutions for building Internet applications, e.g. Struts, Spring MVC, Java Server Faces.

Building of user interface. Elements of HTML, XML and XHTML languages. The style of media presentation. Internet access requirements (WAI). Advanced internet document formatting functions. Cascade style sheet. Graphics and media in WWW network. Template technology.

Applications server. Cycle of life of internet application. Roles in the process of implementing web applications: component delivery, application assembly, launching, container storage and server administration. Management of session and database connections pools. Deployment descriptors. Archives of deployment for simple Internet applications WAR and corporation applications EAR. Overview of popular containers e.g. Apache Tomcat, JBoss and application server Web Sphere Application Server. Security issues of application servers.

Network services. XML as basic of network services architectures. Data transmission: SOAP, JAR-RPC. Document verification with DTD. Discussion of the strategy of optimizing network services: pro-active, definitive and reactive. UDDI service register. Security of network services: XML digital signature, XML coding, key management. Example of network services.

Teaching methods

Lecture: conventional lecture Project: project method

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols Methods of verification	The class form	
The student is able to characterize the technologies used to create individual tiers of the corporate application.	• a test with score scale	• Lecture	
The student is able to use Java EE design patterns in the design of multi-tier applications and network services.	 an observation and evaluation of the student's practical skills 	LectureProject	

Outcome description	Outcome symbols Methods of verification	The class form
The student knows the construction of scalable web applications based on multi-tier architecture.	• a test with score scale	• Lecture
The student is able to effectively use the support tools to build complex applications.	 a project an observation and evaluation of the student's practical skills 	 Project
The student knows and is able to implement solutions ensuring the security of Internet applications.	 a project an observation and evaluation of the student's practical skills 	LectureProject
The student is able to create an Internet application based on multi-tier architecture.	 an observation and evaluation of the student's practical skills 	 Project

Assignment conditions

Lecture - obtaining a positive grade in written exam.

Project - a condition of pass is to obtain positive marks from all project tasks and preparation written report of project.

Calculation of the final grade: = lecture 50% + project 50%.

Recommended reading

- 1. Alur D. Crupi J. Malks D.: Core J2EE Patterns: Best Practices and Design Strategies, 2nd Ed., Prentice Hall, 2003.
- 2. Horstmann C.S.: Core Java Volume I Fundamentals, 11th Ed., Prentice Hall, 2018.
- 3. Horstmann C.S.: Core Java, Volume II Advanced Features, 11th Ed., Prentice Hall, 2019.
- 4. Hall M, Brown L.: Core Servlets and Javaserver Pages: Core Technologies, Vol. 1, 2nd Ed., Prentice Hall, 2003.
- 5. Marciniak A.: Java Server Faces and Eclipse Galileo. Making of WWW application, Helion, Gliwice, 2010.
- 6. Wolf D., Henley, A.J.: Java EE Web Application Primer Building Bullhorn: A Messaging App with JSP, Servlets, JavaScript, Bootstrap and Oracle, Apress 2017.

Further reading

- 1. McGovern M.: Java Web Services Architecture, Morgan-Kaufman, 2003.
- 2. Friesen J.: Java XML and JSON: Document Processing for Java SE, 2nd Ed., Apress, 2019.
- 3. David Geary D. Horstmann C.S. Hall M.: Core JavaServer Faces, 4th Ed., Prentice Hall, 2018.

Notes

Modified by dr hab. inż. Marek Sawerwain, prof. UZ (last modification: 31-10-2019 23:47)

Generated automatically from SylabUZ computer system