Poznan University of Technology
Faculty of Electrical Engineering

European **C**redit **T**ransfer **S**ystem

Title **Applications of information technologies**	Code **1010332421010330682**
Field **Computer Science**	Year / Semester **1 / 2**
Specialty **-**	Course **core**
Hours Lectures: **1** Classes: **-** Laboratory: **1** Projects / seminars: **1**	Number of credits **4**
	Language **polish**

Lecturer:

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Status of the course in the study program:

Obligatory course for Internet technologies specialization

Assumptions and objectives of the course:

Presentation of the most important trends in software systems exploitation and techniques of designing distributed applications based on web services technology

Contents of the course (course description):

Topics of lectures:

1.   Introduction to Web services architecture, recent trends (Web services and statefullness, WS vs REST, REpresentational State Transfer, the role of Web services in Service Oriented Architecture)

2.   Model of software systems offered as services, the concept of cloud computing, Amazon AWS

3.   Web services security

4.   Business process management, Business Process Execution Language (BPEL), complex business process orchestration and choreography

5.   Alternative to SOAP-WSDL-UDDI methods for accessing and searching web services, REpresentational State Transfer (REST), Application Programming Interfaces of leading global service providers: Amazon, Yahoo, Google, hybrid web applications (web mashups)

6.   Overview of Web services offered by leading global and Polish service providers: Google, Amazon, Yahoo, eBay, Allegro

7.   Web services standardization (W3C, Oasis WS-I).

Topics of laboratory exercises:

1.   Implementation of a client for an existing Internet web service based on SOAP and WSDL

2.   Implementation of a simple web service system consisting of the service itself and a SOAP client built according to a WSDL description

3.   Implementation of a web service system consisting of the service itself, a SOAP client built according to a WSDL description and web browser-compatible application (JSP) providing user interface to the service.

4.   Implementation of a statefull web service integrated with the mechanism of virtual HTTP sessions

5.   Using SOAP for providing a web service with data of complex structure

6.   Implementation of a client for an existing Internet web service selected from UDDI registry

7.   Implementation of a web service communicating with MSSQL database, Oracle9iAS Containers for J2EE and using JDBC and JSP technologies

8.   Implementation of a complex web service system consisting of several services orchestrated and choreographed together as a e-commerce application communicating with MSSQL database, Oracle9iAS Containers for J2EE and using JDBC and JSP technologies

Examples of projects? topics:

1.   Semantic search system supporting exploration of UDDI registry (based on Latent Semantic Analysis method and a natural language corpus)

2.   Web application based on a web service client adding, reading and searching pictures of the given user in Flickr service using REST web service technology

3.   Web application based on a web service client adding, reading and searching pictures of the given user in Flickr service using SOAP-based web service technology

4.   Application for testing interface of a given web service by means of soapUI tool (test use cases for both SOAP and REST)

5.   Web application based on a web service client for searching movies with connected dependencies provided by YouTube service

6.   Web application based on a web service client enabling planning a route using Google Maps API and modes Map, Satellite and Terrain

7.   Web application based on a web service client for searching items offered within e-commerce service (using eBay API or Amazon AWS API) according to specified search criteria and featuring currency conversion functionality

8.   Web application based on a web service client for searching Wikipedia service, presenting search results and exploiting Wikipedia Thesaurus in order to present semantic relations between words

Introductory courses and the required pre-knowledge:

Programming, XML, networking

Courses form and teaching methods:

Lectures, laboratory exercises, project

Form and terms of complete the course - requirements and assessment methods:

Lecture: exam (written) - theoretical and conceptual knowledge assessment

Laboratory: evaluation of experiments and reports

Project: evaluation of system design and implementation

Basic Bibliography:

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Additional Bibliography:

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