

# Designing of industrial computer systems - course description

General information	
Course name	Designing of industrial computer systems
Course ID	11.3-WE-INF-DofICS-Er
Faculty	<a href="#">Faculty of Computer Science, Electrical Engineering and Automatics</a>
Field of study	Computer Science
Education profile	academic
Level of studies	Second-cycle Erasmus programme
Beginning semester	winter term 2021/2022

Course information	
Semester	3
ECTS credits to win	4
Course type	obligatory
Teaching language	english
Author of syllabus	

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	15	1	-	-	Credit with grade
Laboratory	30	2	-	-	Credit with grade
Project	15	1	-	-	Credit with grade

## Aim of the course

To acquaint students with modern technologies for the design and production of industrial IT applications using: web technologies, cloud computing, databases and technologies for building applications for mobile devices.

## Prerequisites

Data Warehouses, Industrial IoT

## Scope

The evolution of industrial computer systems. Website construction technologies using asynchronous JavaScript (AJAX) technologies to communicate with the server in the background, displaying content in real time in a graphical manner using the SVG vector graphic format and the raster canvas.

Server-side technologies enabling WebApi communication with data exchange in JSON and XML formats. The use of microservices. Rules for designing and publishing web applications designed to work in the cloud. The use of various models of building applications, such as SaaS, PaaS. The use of container technology. Network Load Balancing. Launching cloud database systems. Possibilities of migration of classic database systems to cloud solutions. Construction of desktop and Web client applications. Techniques of continuous implementation and integration of systems running in the cloud. Construction of applications for mobile devices cooperating with industrial IT systems. Responsive websites. Progressive websites. Native applications that communicate with web services. Development trends of industrial IT systems.

## Teaching methods

lecture: conventional lecture

laboratory: work in groups, practical classes

project: work in groups, practical classes

## Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
Is aware of the importance of internet technologies in modern industrial information systems.		<ul style="list-style-type: none"><li>a discussion</li><li>activity during the classes</li></ul>	<ul style="list-style-type: none"><li>Lecture</li><li>Laboratory</li><li>Project</li></ul>
Has basic knowledge about the use of selected methods of building distributed internet applications in the cloud.		<ul style="list-style-type: none"><li>a test with score scale</li></ul>	<ul style="list-style-type: none"><li>Lecture</li></ul>
Can launch a web application in the cloud.		<ul style="list-style-type: none"><li>an observation and evaluation of activities during the classes</li></ul>	<ul style="list-style-type: none"><li>Laboratory</li></ul>
Can run a database system in the cloud.		<ul style="list-style-type: none"><li>an observation and evaluation of activities during the classes</li></ul>	<ul style="list-style-type: none"><li>Laboratory</li></ul>

## Assignment conditions

Lecture - the condition for getting credit is obtaining positive grades from written tests carried out at least once in a semester.

Laboratory - the condition for passing is obtaining positive grades from all laboratory exercises, planned to be implemented under the laboratory program.

Project - the condition for getting credit is obtaining positive grades from all project tasks planned for implementation.

Components of the final grade = lecture: 30% + laboratory: 40% + project: 30%

## Recommended reading

1. Duckett J., HTML i CSS. Design and build a website. Front End Developer Handbook, Helion 2014.
2. Duckett J., JavaScript i jQuery. Interactive websites for everyone. Front-End Developer Handbook, Helion 2015.
3. Redkar T., Guidici T., Windows Azure Platform, Helion 2013.

## Further reading

1. Matulewski J., Visual Studio 2017. Creating Windows applications in C #, Helion 2018. (in polish)
2. Płonkowski M., Android Studio. Creating mobile applications, Helion 2017. (in polish)
3. Lubbers P., Albers B., Salim F., HTML5. Advanced programming, Helion 2013.

## Notes

Modified by dr inż. Emil Michta, prof. UZ (last modification: 15-07-2021 15:32)

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