

# Control over wide-area networks - course description

General information	
Course name	Control over wide-area networks
Course ID	11.9-WE-AutD-CintheSofW-aN-Er
Faculty	<a href="#">Faculty of Computer Science, Electrical Engineering and Automatics</a>
Field of study	Automatic Control and Robotics / Computer Control Systems
Education profile	academic
Level of studies	Second-cycle Erasmus programme
Beginning semester	winter term 2020/2021

Course information	
Semester	2
ECTS credits to win	2
Course type	optional
Teaching language	english
Author of syllabus	<ul style="list-style-type: none"><li>dr inż. Robert Szulim</li><li>dr hab. inż. Wiesław Miczulski, prof. UZ</li></ul>

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	15	1	-	-	Credit with grade

## Aim of the course

- To familiarize with selected elements of information technology used in the structure of systems using wide area network.
- To develop basic skills in the design and commissioning of systems using network interfaces, WWW portals and databases.

## Prerequisites

Programming with essentials of algorithmic, Computer networks.

## Scope

Introduction. Selected elements of the network technologies used in the structure of the wide area network. Protocols: TCP/IP, HTTP, FTP and SMTP.

Overview of the capabilities of modern operating systems used in embedded devices and servers to communicate with external devices using TCP/IP protocol. Dedicated software solutions for the data exchange in heterogeneous network environments.

The Web Servers. The construction of servers, administration and implementation in the wide area network structure. Launching the web server on different operating systems.

Dynamic web portals for integration with automation devices, system state presentations, device control and integration with database systems.

HTML, ASP.NET and AJAX technologies.

## Teaching methods

Lecture, laboratory exercises, team work, project.

## Learning outcomes and methods of their verification

Outcome description	Outcome symbols	Methods of verification	The class form
Can start simple, dynamic web portals		<ul style="list-style-type: none"><li>a project</li><li>a quiz</li><li>an oral response</li></ul>	<ul style="list-style-type: none"><li>Laboratory</li></ul>
Is aware of the importance of data exchange between devices and systems in the area of automatics and robotics		<ul style="list-style-type: none"><li>an evaluation test</li></ul>	<ul style="list-style-type: none"><li>Lecture</li></ul>
Can build a simple IT system with a database implementation in order to store system operation information		<ul style="list-style-type: none"><li>a project</li><li>a quiz</li><li>an oral response</li><li>carrying out laboratory reports</li></ul>	<ul style="list-style-type: none"><li>Laboratory</li></ul>

Outcome description	Outcome symbols	Methods of verification	The class form
Can build a simple IT system employing communication interface and elements of concurrent programming		<ul style="list-style-type: none"> <li>• a project</li> <li>• a quiz</li> <li>• an oral response</li> <li>• carrying out laboratory reports</li> </ul>	<ul style="list-style-type: none"> <li>• Laboratory</li> </ul>
Has a basic knowledge on information technologies used in the structure of WAN		<ul style="list-style-type: none"> <li>• an evaluation test</li> </ul>	<ul style="list-style-type: none"> <li>• Lecture</li> </ul>

## Assignment conditions

Lecture – the main condition to get a pass are sufficient marks in written or oral tests conducted at least once per semester.

Laboratory – the passing condition is to obtain positive marks from all laboratory exercises to be planned during the semester.

Calculation of the final grade: lecture 40% + laboratory 60%

## Recommended reading

1. Tanenbaum A., *Computer Networks*, 5/e, Pearson, 2011.
2. Homer A., Pro ASP.NET Web Forms Techniques, Second Edition, APress, 2004.
3. Wei L., Matthews C., Parziale L., Rosselot N., Davis C., Forrester J., Britt D., *TCP/IP Tutorial and Technical Overview*, An IBM Redbooks publication, 2006.

## Further reading

1. Hart C., Kaufmann J., Sussman D., Ulmann C., *Beginning ASP.NET 2.0*, Wiley Publishing, 2006.
2. Stephens R., *Start Here! Fundamentals of Microsoft® .NET Programming*, Microsoft, 2011.
3. Ullman Jeffrey D., Widom Jennifer , *A First Course in Database Systems*, Pearson Prentice Hall, 2008.

## Notes

Modified by dr hab. inż. Wiesław Miczulski, prof. UZ (last modification: 29-04-2020 19:59)

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