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	Faculty of Computer Science, Electrical Engineering and Automatics
Field of study	Automatic Control and Robotics / Computer Control Systems
Education profile	academic
Level of studies	Erasmus programme
Beginning semester	winter term 2017/2018

Course information

Semester	2
ECTS credits to win	2
Course type	optional
Teaching language	english
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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: TCPIP, HTTP, FTP and SMTP.

Overview of the capabilities of modern operating systems used in embedded devices and servers to communicate with external devices using TCPIP 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 theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
Has a basic knowledge on information technologies used in the structure of WAN		• an evaluation test	• Lecture
Is aware of the importance of data exchange between devices and systems in the area of automatics and robotics		• an evaluation test	• Lecture
Can build a simple IT system employing communication interface and elements of concurrent programming		• a project • a quiz • an oral response	• Laboratory
Can build a simple IT system with a database implementation in order to store system operation information		• a project • a quiz • an oral response	• Laboratory

Outcome description	Outcome symbols	Methods of verification	The class form
Can start simple, dynamic web portals		• a project • a quiz • an oral response	• Laboratory

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: 04-05-2017 16:03)