Study program: Electrical and Computing Enginering – Module: Remote Control

Type and level of studies: Master studies (second level of studies)

Course unit: Virtual Instrumentation

Teacher in charge: Milovanovic Alenka

Language of instruction: English

ECTS: **6**

Prerequisites: -

Semester: Winter

Course unit objective

Gaining skills at using LabVIEW software for instrument control, measurement, data acquisition and data handling. Students are able to publish VIs front panels on the Web, view and control them remotely from LabVIEW or a web browser without any programming.

Learning outcomes of Course unit

After the course, each student is expected to be able to:

- Recognize the components of Virtual instrumentations and use them for PC Based Measurement.
- Use LabVIEW software for instrument control, measurement, data acquisition and data handling.
- Publish VIs front panels on the Web, view and control them remotely from LabVIEW or from a web browser without any programming.

Course unit contents

Theoretical classes

Students are introduced to the following topics:

– Introduction to Virtual Instrumentation
– Sensors and Transducers
– PC Based Measurement
– Introduction to LabVIEW
– Organization of the LabVIEW system and software
– Program elements of LabVIEW
– Data Acquisition & Signal Conditioning
– Remote laboratory for Electrical experiments
– Examples of measurement applications

Practical classes

Laboratory and computer sessions, web discussions via forum and e-mail, case study

Literature

1. B. Mihura, LabVIEW for Data Acquisition, Prentice Hall, 2001
2. R. Bishop, LabVIEW 8 Student Edition, Prentice Hall, 2006
3. R. Baican, D.S. Necsulescu, Applied Virtual Instrumentation, Computational Mechanics, Inc., 2000
4. B.E. Paton, Sensors, Transducers and LabVIEW, Prentice Hall, 1999
5. T.A. Fjedly, M.S. Shur, Lab on the Web, Running Real Electronics Experiments via the Internet, John Wiley & Sons, 2003
6. J. Travis, Internet Applications in LabVIEW, Prentice Hall, 2000
7. R. Baican, D.S. Necsulescu, Applied Virtual Instrumentation, Computational Mechanics, Inc., 2000

Number of active teaching hours				**Other classes**
Lectures: 2	*Practice: 2*	*Other forms of classes:* Mentoring system	*Independent work:* Case study	

Teaching methods: consultations, independent individual work

Examination methods (maximum 100 points)

Exam prerequisites	**No. of points:**	**Final exam**	**No. of points:**
Student's activity during lectures	**10**	oral examination	
Practical classes	**20**	written examination	*40*
Seminars/homework	**30**	.....	
Project			

Grading system

Grade	**No. of points**	**Description**
10	**91-100**	Excellent
9	**81-90**	Exceptionally good
8	**71-80**	Very good
7	**61-70**	Good
6	**51-60**	Passing
5	**less than 50**	Failing