

Study program: Electrical and Computing Engineering – 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:			
<ul style="list-style-type: none"> • 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:			
<ul style="list-style-type: none"> – 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			
<ol style="list-style-type: none"> 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. Neculescu, 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. Neculescu, 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	