COURSE SYLLABUS

University	**Alexandru Ioan Cuza University of Iaşi**	**Course title**	
Faculty	**Physics**	**VIRTUAL INSTRUMENTATION**	
Department	**Physics**		
Domain	**Physics**	**Course category** (FC/SC/CC[1]): FC	**Term** (1-4): 2
Level	**Postgraduate (MA)**	**Course type** (Co/El/F[2]): Co	

I. Course structure

Number of hours/week				Credits	Total class hours/ semester	Total hours of individual activity	Examination type (C/Ex/CE[3])	Teaching language
Course	Seminar	Lab.	Project	**6**	**56**	**124**	**Ex**	**English**
2	**-**	**2**	**-**					

II. Instructors

	Academic degree[4]	Scientific degree	Name and surname	Faculty position (tenure/ associate - organization)
Course	Lecturer	PhD	Catalin AGHEORGHIESEI	tenure
Laboratory	Assistant professor	PhD	Bogdanel-Silvestru MUNTEANU	tenure

III. Prerequisites

Electricity, electronics, programming languages

IV. Course objectives

1. Analogic and digital measurements principles
2. Data Acquisition operation - basics skills
3. Understanding Virtual Instrument concepts
4. Creating Virtual Instruments for practical works

V. Course content

Course	I. MEASUREMENT SYSTEMS
	    – analogic systems
	    – digital systems
	II. DATA AQUISITION
	    – Data acquisition boards
	    – Serial ports: RS-232, USB
	    – Parallel ports: IEEE-1284
	    – GPIB standard IEEE-488.2
	III. VIRTUAL INSTRUMENTATION IN LABVIEW
	    – Introduction (Front Panel, Block Diagram)
	    – Data Types, Operators
	    – Instructions
	    – Graphics
	    – Virtual Instrument projects

Laboratory	1. Introduction in LabVIEW (front panel, diagram block) 2. Programming structures 3. Data Structures 4. Strings, files, nodes 5. Creating Virtual Instruments 6. Analogic Signals acquisition 7. Signals generation 8. Graphics

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[1] FC – fundamental course, SC – specialty course, CC – complementary course

[2] Co – compulsory, El – elective, F – facultative

[3] C – colloquium, Ex – exam, CE – colloquium AND exam

[4] Professor / Associate professor / Lecturer / Assistant professor / Teaching assistant

	9. Mathematical functions in LabVIEW
	10. Digital Ports
	11-14. Personal practical works

VI. Minimal required references

1. LabView Tutorial Manual, National InstrumentsCorp., 1996-2010 (www.ni.com).

2. LabVIEW. Basics Course Manual, National Instruments Corp., USA, 1998-2010

3. http://www.plasma.uaic.ro/ro/downloads/cat_view/59-instrumentatie-virtuala - course support (in Romanian)

VII. Didactic methods

Computer based lecture, step by step programming tutorials, experiments, personal projects

VIII. Assessment

Pre-conditions	60% of lectures attendance,
	100% practical works attendance
	Obtaining minimal running Virtual Instrument for personal practical work

| Exam dates | 1st Assessment | April |
| | 2nd Assessment | June |

	Assessment means and methods	Percentage of the final grade
Exam/Colloquium	Written Test	50%
Laboratory	Project	50%