

"1 DECEMBRIE 1918" UNIVERSITY, ALBA IULIA, ROMANIA

ON COMPUTERISING GEODETIC SURVEYS IN THE CONTEXT OF HIGHER EDUCATION

Luciana OPREA, Romania Ioan IENCIU, Romania



INTRODUCTION

The legislative framework for assuring the quality of Romanian higher education:

- -Law 288/24 June 2004 on the organization of higher education;
- -The Government Decision 1175/06 Sept. 2006 on the organization of undergraduate studies and on the approval of the list containing subject areas and undergraduate study programmes;
- -The Government Decision 404/29 March 2006 on the organization of higher education;
- -Law 87/10 Apr. 2006 on the approval of the Government Emergency Ordinance No. 75/2005 regarding the assurance of education quality.

On Computerising Geodetic Surveys in the Context of Higher Education Luciana OPREA, Joan IENCIU – Alba Iulia, ROMANIA

26 – 28 February 2009



CONTENTS OF EDUCATION AS A PROCESS

The length of studies and the volume of teaching activities:

Indicator	Full-time courses, Distance education, Part-time courses	Evening classes
Length of studies, of which:	8 sem.	10 sem.
Minimum semester length	14 weeks	14 weeks
Number of hours/week	26 –28	21 – 22
Added length of practical activities	4 – 6 weeks	4 – 6 weeks
Length of practical activities dedicated to the preparation of the Thesis/Diploma project	2 - 3 weeks (during the last year of studies)	2 - 3 weeks (during the last year of studies)



CONTENTS OF EDUCATION AS A PROCESS

Categories of disciplines:

- -fundamental disciplines, minimum 17%;
- -disciplines of the study area minimum 38 %;
- -specialty disciplines, minimum 25 %;
- -complementary disciplines, maximum 8%.

On Computerising Geodetic Surveys in the Context of Higher Education-Luciana OPREA, Joan IENCIÜ – Alba Iulia, ROMANIA 26 – 28 February 2009 Vienna, Austria On Computerising Geodetic Surveys in the Context of Higher Education Luciana OPREA, Joan TENCIÜ – Alba Iulia, ROMANIA

26 – 28 February 2009 Vienna, Austria



A COMPARATIVE CURRICULA STUDY

'December 1st 1918' University of Alba Iulia

	_			_								_	
ı						Teition and individual study hours							
ı			4		Tuition hours						Individual stu		- 4
ı	ş.		1.5	· š	T.	achi	ng activit	¥2	*		-15		, §
	0:7	Designation of Disciplines	Type of Discipline	Hamber of weeks	Course	Seminar	Laboratory	Project	Total hourshook	Ton! hourthementer	Total hoursheek	Total	Humber of credite
ı						lst	YEAR						
ı		1ST SEMESTER											
ı	1	Mathematical analysis	F	14	2	1		-	3	42	3	42	4
ı		Linear algebra	F	14	1	1			2	28	3	42	3
ı	3	Descriptive geometry	F	14	2		2	-	4	56	3	42	4
ı		Physics	F	14	2		- 1	-	3	42	2	28	-4
ı	5	Topography I	F	14	2		2	-	4	56	3	42	5
ı	6	Chemistry	F	14	2		2		4	56	3	42	4
ı		Geodetic instruments and surreying methods	D	14	2		2		4	56	3	42	4
ı	COMPLEMENTARY DISCIP								IMES				
ı	8	Foreign language l	С	14		2			2	28	1	14	2
ı	9	Sport	С	14		2			2	28	0	0	-
ı		TOTAL – 1st semester	-	14	13	6	9	0	28	392	21	294	30
ı						DSI	MESTE	ł					
ı	1	Special mathematics	F	14	2	1		٠	3	42	1.5	21	3
ı		Differential and analytical geometry	F	14	2	1			3	42	1.5	21	3
ı		Technical and map drawing	F	14	2		1		3	42	2	28	3
		Topography 2	F	14	2		2	2	6	84	3	42	6
		Measurements compensation and statistics 1	F	14	2	-	1	-	3	42	1.5	21	4
		General geology	D	14	2		2	-	4	56	1.5	21	3
	7	Geography	D	14	2				2	28	1.5	21	3
ı	_		_		LEM		ARY DIS	IPL					
ı		Foreign language 2	С	14		2			2	28	1.5	21	2
ı		Sport	С	14	_	2			2	28	-		-
		TOTAL – 2nd semester (without the practical activities)	- D	14	14	6	6	2	28	392	14	196	27
		Practical activities 1 (Topography)	2	-	E		-	0	60	30	60	3	
ı		TOTAL / YEAR	١.	28	27	12	15	2	56	844	65	550	60.

Technical University of Civil Engineering, Bucharest

Cr. Ma.	Designation of Discipline	С	S	L	P	SI	10	CR
		1я	Semi	zter				
1.	Higher Mathematics I	2	2	-	-	2	6	4
2.	Algebra	2	2	-		2	6	5
3.	Geometric representations of topographical surfaces	2		2		3	7	5
4.	Physics I	3	-	1	-	2	6	5
5.	Surveying instruments and methods I	2	-	2	-	3	7	5
6.	Physical geography	2	-	-	-	1	3	2
7.	Disciplines of the social sciences and humanities area	2	2	-	-	1	5	3
8.	Foreign Language I		(2)	-		(I)	(3)	1
9.	Sport I	-	(2)					
	TOTAL 26	15	6	5	·	14	40	30
_		2m	Sem	ester				ш
1.	Higher Mathematics II	2	2	-		2	6	4
2.	Analytical and differential geometry	2	2	-	-	2	6	4
3.	Physics II	3	-	1	-	2	6	4
4.	Geometric bases of Photogrammetry (GBP)	2	-	1	-	1	4	2
5.	Surveying instruments and methods II	2	-	2	-	2	6	5
6.	Castographic drawing	-		2	•	1	3	2
7.	The basics of physical geodesy I	2				2	4	3
8.	Geodetic astronomy	2	-	1	-	2	5	2
9.	Foreign languages II	-	(2)		•	(1)	(3)	1
10.	Sport II	-	(2)	-	-	-	-	
11.	Practical activities I	3 weeks x 30 hours		-	3	О		
	TOTAL 26	15	4	7		14	40	30

On Computerising Geodetic Surveys in the Context of Higher Education Luciana OPREA, Joan IENCIÚ – Alba Iulia, ROMANIA

26 – 28 February 2009 Vienna, Austria

1918 1918 1918 1918 1918 1918 1918

A COMPARATIVE CURRICULA STUDY

'December 1st 1918' University of Alba Iulia

											_		
П	Theider and individual study hours Distant hours Individual study												
ıl		18.	['		_			haor	Judula	ial raidy	뒿		
O: 38a	Designation of Disciplines	Type of Disciplose	Muniter of weeks			ing activit	П	Total hour steeds	Total	Conthoursheek	Total haurshemester	Number of crelis	
		12	Munte	Course	Seminar	Leboratory	Project	Totalho	To hourst	Totalho	To hourst	W.	
					3RP	YEAR							
_		_	_	15	T SF	MES TER	<u> </u>		_	_			
	Remote sensing and Photo interpretation	D	14	2	Ŀ	2	-	4	56	3	42	4	
2	Mathematical cutography	D	14	2		2		4	56	2.5	3.5	4	
	Computer graphics for topography and cadastre		14	2		2		4	56	3	42	4	
	Cedastre 1	s	14	2		2		- 4	56	3	42	5	
5	Photogrammetry 2		14	1		1		2	28	3	42	4	
	ELECTIVE DISCIPLINES												
	foxomation of the top ographical and goodstic surveys	s	14	2		2	·	4	56	2	28	5	
	Measurement and data processing techniques												
	Archaeology	D	14	2		2		4	56	2	28	4	
	Archaeological topography	Ľ		L	L		Ц				Ш		
	TOTAL - 1st senester		14	13	0	13	0	26	364	18.5	259	30	
Щ.		_			ID ST	EMES TE							
	Buginesing Photogrammity	Þ	26	2		2		- 1	56	2	28	- 4	
	Smills grotery	\$	24	2		2		4	.56	3	42	4	
	Debette 2	1	14	2		1	2	- 5	70	3.5	49	- 6	
	Cettographic projections	Þ	34	1	-	1		2	20	2	20	3	
	Townplening	D	14	2		1		3	42	1	14	İ	
6	Leid ingroveser.	Ð	34	2		1	Ŀ	3.	42)	42	3	
_		_				DESCRIPT	øσ						
	Several ecology	D	34	2		1		1	42	2	20	1	
ш	Bioritoettueri, protection, and containable development			L									
	Cydelini rating	Þ	14	2		1		3.	40	3	14	3	
-	App-dumintry												
ш	TOTAL - Ind remedes (nithern)		14	16		10	2	27	378	16.5	231	27	
9	Practical activities 1 (Topography)	Þ	2		-				60	30	60	- 2	
	TOTAL (YEAR		28	78		23	2	48	107		410	40	

On Computerising Geodetic Surveys in the Context of Higher Education Luciana OPREA, Joan IENCIU – Alba Iulia, ROMANIA

Technical University of Civil Engineering, Bucharest

r. No.	Designation of Discipline	С	S	L	Ρ	SI	10	CR
		St2	Sem	ster			_	
1.	The basics of engineering surveying	2		2		2	6	5
2.	Mathematical Geodesy II	-	-	-	1	1	2	2
3.	Mathematical Geodesy III	2		-	-	1	3	4
4.	Map projections	2		1		3	6	4
5.	Electronic distance measurement	2		2	-	2	6	4
б.	Stereo-Photogrammetry and Photo-interpretation	2		1	-	2	5	4
7.	Roads and works of act	2		2	-	2	6	3
8.	Hydrotechnical constructions and public technical utility systems	2	•	2	-	2	6	3
9.	Foreign language V TOTAL 25		(2)			(I)	(3)	1
		611	Sem	ester				
1.	Mathematical Geodesy III				2	1	3	2
2.	Cadastre I	2		1		1	4	3
3.	Map modelling I	2	-	2		2	6	3
4.	Engineering surveying for civil engineering and the industry I	3			2	3	8	3+2
5.	AnalyticalPhotogrammetry	2			1	2	5	2+2
6.	Legal institutions and laws on the agricultural real estate and cadastre	3	-	2		2	7	3
7.	Practical activities III	30 hours			4	c		
8.	Electics disciplines MODULE I	1		1		1	3	2
	(*)	2		1		1	4	4
9.	Electicy disciplines MODULE 2	2				1	3	2
	(9)	2	-	1	-	1	4	4
	TOTAL 27	15/16	_	7/6		13	-40	38

26 – 28 February 2009 Vienna, Austria



A COMPARATIVE CURRICULA STUDY

'December 1st 1918' University of Alba Iulia

							Thition	and	individual saudj	yours				
			š				27	viaa	i hauri		And year.	ar rawy	- 5	
	2		adp	₩.	27	necho	ίτης ακαίνιά	e	*		16		ja ja	N.
4	0.0	Designation of Disolphnes	Type of Disdythee	Митее д'явект	Caura	Semisor	Laboratory	Project	Total hours week	Total hours/sementer	Total hours week	Total hourstementer	Humber of credits	
			_		_	2200	YEAR	_						
					ŀ	4 SE	MESTER							
	1	Computer programming and promotive methods	F	14	2		3		4	36	3	43	- 6	1
	2	foll mady	D	14	2	2			3	42	2.5	35	4	1
	1	Desert cross is Civil, behaved and Agricultural Engineering	D	14	2		1		- 3	12	3	42	4	
	4	Deodery I	s	14	2	-	3	ŀ	4	36	3	42	5	1
	5	Mouraments compensation and statistics 2	r	14	2	2	-	ŀ	4	36	3	42	5	
					LECT	(22	DESCRIPT	242	ī.					1
		Onide Series	D	14	2		3		4	36	2	28		
	l٠	Technolog												
	Н	Technic	_	COMP		-	AND DE	_	Date:		_			1
	7	Foreign language 3	С	14	1	12	-	T.	2	26	1.5	21	2	1
		Sport	С	14		2	-		2	20		0		1
		TOTAL 1" Seweter		14	12	7	,		26	364	10	252	30	
					28	D 57	574657 283	٠.						1
	1	Lend laws and coductral legislation	D	14	2	2		ŀ	- 4	56	3	42	- 4	
	2	Geodetic surveying by mores	s	14	2		2		4	56	3	42	5	
	3	Geodesy: 2	s	14	2		2	2	- 6	84	3	42	- 6	
	4	Photogrammetry 1	S	14	2	2	-	Ŀ		56	3	42	. 5	
			_	_		_		_		_	_	_		
		Automatic processing of geodatic data	s	14	2		2	Ŀ	+	56	2	28	5	
	Ĺ	Progressus operation in topography and cudants												ľ
					E.E.M		AFT DE	JPL.						П
	6	Foreign language 4	C	14	-	2	- 1		2	28	1.5	21	2	Г
	7	Sport	c	14	⊢	2	-	Ŀ	2	28	⊢	0		Г
	L	TOTAL - 2nd senseter (valhout the practical activities)	٠	14	10	8	6	2	26	364	15.5	217	27	
	8	Practical activities 1 (Topography)	D	2	Ŀ	Ŀ	-	Ŀ	-	60	30	60	3	Г
	_	TOTAL / YEAR		28	22	15	13	12	52	766	63.5	529	-66	J

Technical University of Civil Engineering, Bucharest

Ī	Cr. No.	Designation of Discipline	С	S	L	P	SI	то	CR
ı			3rc	Sem	ester				
ı	1.	Higher Mathematics III	3	2	-	•	2	7	5
	2.	Automatic processing of geodetic data	3		3		2	8	5
	3.	Measurement compensation and statistics I	3	-	2	-	3	8	6
	4.	The basics of Physical Geodesy II	2	-	1	-	3	6	4
ı	5.	Mathematical Geodesy I	2	-	-		2	4	4
ı	6.	Topography I	2	-	2		3	7	- 5
ı	7.	Foreign language III	-	(2)	-	-	(I)	(3)	1
ı	8.	Sport III		(2)	-		-	-	-
		TOTAL 25	15	2	8	·	15	40	30
H			413	1 Seme	ster	_			
	1.	Measurement compensation and statistics II	3		2		2	7	5
	2.	Topography II	2	-	-	2	3	7	3+2
ı	3.	Planmetric Photogrammetry	2	-	1	-	2	5	3
	4.	Computer systems in land surveying	3		2		2	7	5
	5.	The basics of geodetic surveying by waves	2		1		1	4	2
ı	6.	Mathematical Geodesy II	2	-	1		2	5	4
	7.	General course in Civil, Industrial and Agricultural Engineering	2		2		1	5	2
	8.	Foreign language IV		(2)	-	-	(1)	(3)	1
V	9.	Sport IV		(2)	-		-	-	-
	10.		3 weeks.x30 hours	-	-	3	С		
		TOTAL 27	16		9	2	13	40	30

On Computerising Geodetic Surveys in the Context of Higher Education Luciana OPREA, Joan IENCIÜ – Alba Iulia, ROMANIA

26 – 28 February 2009



A COMPARATIVE CURRICULA STUDY

'December 1st 1918' University of Alba Iulia

											_		_
	Tuition and individual study hours									hours			, to
	1	Section of Disciplinary of Dis							_	Indist	ne? saudy	Teb.	
	18	Decision from of Observations	20	1 1	- 7	es ch	ng acens	es	*	į.	18	l is	6
4	ő	Lesquatery Languer	Das de	Murther of seasts	Course	Seminar	Lehrainy	Project	Total hours/meek	Total haurstemester	Total hours week	Total hacrotemester	Number of credits
	П					417	YEAR						
			_			TSE	MESTE	_			_		
	1	Celetre 3	5	34	2		1		3	42	2	28	5
	2	Montoring lend and construction behaviour	1	34	2	٠	2		4	56	3	42	4
	3	Mangropopopy	5	14	2		1		3	42	3	42	4
	4	The evolution of fixed wrets	D	24	2	Ŀ		Ŀ	-	56	3	42	
	5	Padagorists	C	34	1		1		2	28	3	42	1
	⊢	N		_	ш	μ2,	DOCUM	NZ.	_	_		_	_
		Biginesing earnying fix civil segmenting and industry 1 #	2	14	2		3	2	- 6	84	3	42	4
	⊢	Digherholy-graphy *	Н	_	⊢	Н	_	Н		_		-	_
	١,	Comprise cycles in Cudulty		34	2	·	3	ŀ	4	56	3	42	4
	Ĺ	Ovographic belometion cytome		L									
	_	TOTAL - Intreventer		14	п	٠	11	2	24	364	29	260	36
	_		_		1%	D 51	IMES TE	<u> </u>					
	1	Durings and optimization of quadetic pulproduc		12	2	-	1	-		36	3	34	4
	2	Mesopenes of goodetic naveys	Þ	12	2	2			4	40	2	24	
	3	Lend and town planning	1	12	ż		3		- 4	40	3	36	4
	4	Médică edisdesquelle projet procession	D	12		2		-	2	24	2	24	1
	5	Cever guidece	Þ	32	2		3		- 3	36	3	36	3
	6	Con scorading	D	12	2		1		3	36	3	36	,
	ŕ	- Andreas	-		_		DATE OF THE PARTY NAMED IN	-		0	, ,	- 20	
	\vdash	Occidentative	5	12	2	72	ADCOR.		4	40	3	36	
		Computational recontinguage of the agricultural relate	ŕ	-	ŕ	ŕ	ŕ	Ė		-	_	<u> </u>	
		TOTAL - 2nd remoter (nithout Supprecised activities)		12	14	4	٠	٠	24	312	22	264	30
	9	District whites (freeingsp the Diplomatheris)	D	2				-	0	60	3	6	4
		TOTAL / YEAR								736		544	60

Technical University of Civil Engineering, Bucharest

The design and optimization of geodules instead of geodules inst		Cr. No.	Designation of Discipline	С	3	L	Ρ	SI	TO	CR	H
2. Engineering Phologrammatry 3 - 1 - 3 7 6 3. Engineering arroyace for color 2 - 2 - 2 6 6 4. Calastra II 3 - 2 - 3 8 5 5. Accounting 2 1 - 1 4 3 6. Electrical disciplinaria MODULE 2 - 1 - 1 4 2 7. Electrical disciplinaria MODULE 2 - 1 - 1 4 4 7. Electrical disciplinaria MODULE 2 - 1 - 1 4 4 8. Electrical disciplinaria MODULE 2 - 1 - 1 4 4 9. Electrical disciplinaria MODULE 2 - 1 - 1 4 4 10 10 10 10 10 10 10 11 12 13 14 15 12 14 15 15 15 15 15 15 15			•		h Sem						
Segmenting anyways for early 2			.,,.		-	2		_	6		ľ
engineering and the substry II 4. Calastra II				_		1		_		6	ľ
5		-	engineering and the industry II	_	-	-	-	_	-	-	ľ
6. Electron disciplinar MODULE 1 2 - 1 1 - 1 4 2 2 7 - 2 1 5 4 4 4 4 4 7 . 7. Electron disciplinar MODULE 2 2 - 1 1 - 1 1 4 4 4 4 4 4 6 9 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					-	2	-	3	1 -	- 5	ľ
(*) 2 - 2 1 5 4 7. Electricy disciplinare MODULE 2 2 - 1 - 1 4 4 4 (*) 2 - 2 - 2 1 5 4 7. Electricy disciplinare MODULE 2 2 - 1 - 1 4 4 4 (*) 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					1		,				ľ
7. Electricy disciplines MODULE 2 2 - 1 1 1 4 4 4 (7) 2 - 2 - 1 1 5 2 2 TOTAL 27 16 1 10/10 20 13 40 10 10 10 10 10 10 10 10 10 10 10 10 10		6.	Elective disciplines MODULE 1			1		1	Ι.		
Column C			(9)	2			2	1	5	4	ľ
TOTAL 27 16 1 0/10 20 13 40 30		7.	Elective disciplines MODULE 2	2	-	1	-	1	4	4	h
The design and oximication of 2 - - 2 4 3			(*)	2	-	2	-	1	5	2	t
The design and optimization of 2			TOTAL 27	16	1	8/10	2/0	13	40	30	Ħ
geo-date nativeals: 2. Digital Photogrammetry 2 . 1 . 2 5 5 5 3. Ramola sensing 2 . 2 . 3 7 5 5 4. Land improvement and town 2 . 1 . 1 4 3 planning 5. Mountering the behaveour 2 . 1 . 3 6 5 7 kands and construction words 6. Organizing goodste words 2 . 2 . 1 . 5 3 7. Electron due-plann MODULE 2 . 1 . 1 4 2 8. Electron despines MODULE 2 . 2 . 2 . 5 4 4 8. Electron despines MODULE 2 . 2 . 2 . 2 6 4 4 8. Electron despines MODULE 2 . 3 . 3 2				8t	h Sem	ester					Ì
geo-date nativeals: 2. Digital Photogrammetry 2 . 1 . 2 5 5 5 3. Ramola sensing 2 . 2 . 3 7 5 5 4. Land improvement and town 2 . 1 . 1 4 3 planning 5. Mountering the behaveour 2 . 1 . 3 6 5 7 kands and construction words 6. Organizing goodste words 2 . 2 . 1 . 5 3 7. Electron due-plann MODULE 2 . 1 . 1 4 2 8. Electron despines MODULE 2 . 2 . 2 . 5 4 4 8. Electron despines MODULE 2 . 2 . 2 . 2 6 4 4 8. Electron despines MODULE 2 . 3 . 3 2		<u> </u>					_	-			
3 Remote sensing 2 - 2 - 3 7 5			geodetic networks		-	-	-		l .		ľ
4. Land important and town 2 -1 1 4 3					-	1 -	,		1 -	_	ľ
				-		2	,	3	Ι'	_	ľ
Lands and construction works			planning			1		1	"	-	I
7. Electing disciplines MODULE 1 2 - 1 - 1 4 2 2 (1) 2 - 1 - 2 5 4 5 8 Electing disciplines MODULE 2 2 - 2 - 2 5 6 4 6 6 1 - 1 - 1 3 2 2 5 6 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6			lands and construction works			1			-		ľ
(*) 2 - 1 - 2 5 4 6 8. Electize disciplines MODULE 2 2 - 2 - 2 6 4 6 (*) 1 - 1 - 1 3 2						2	,	1	1 -		Π
8. Elective disciplines MODULE 2 2 - 1 - 2 3 4 4 (*) 1 - 1 - 1 3 2		7.	Elective disciplines MODULE 1			1			Ι.		Ī
1 - 1 - 1 3 2				_	-	1 -		_			ľ
		8.	Elective disciplines MODULE 2	2	-	2		2	1 -		ľ
TOTAL 16/15 - 9/10 - 15 40 30						1 *			3	2	Ī
			TOTAL	1605	-	9/10	-	15	48	30	Ī
											1

On Computerising Geodetic Surveys in the Context of Higher Education Luciana OPREA, Joan IENCIU – Alba Iulia, ROMANIA 26 – 28 February 2009 Vienna, Austria



AUTOMATION OF GEODETIC SURVEYS IN AN EDUCATIONAL CONTEXT

The most important disciplines that will offer competences in computerising geodetic surveys:

- -General topography;
- -Topographical tools and measurement methods.



On Computerising Geodetic Surveys in the Context of Higher Education Luciana OPREA. Joan IENCIU – Alba Iulia. ROMANIA

26 – 28 February 2009 Vienna, Austria

26 - 28 February 2009

Vienna Austria



AUTOMATION OF GEODETIC SURVEYS IN AN EDUCATIONAL CONTEXT

The most important disciplines that will offer competences in computerising geodetic surveys:

- -Computer programming;
- -Geodetic surveys by waves:
- -Automatic processing of geodetic data;
- -The automation of topographic and geodetic surveys;
- Computer graphics for topography and cadastre;
- -Satellite geodesy;
- -Engineering Photogrammetry.

On Computerising Geodetic Surveys in the Context of Higher Education Luciana OPREA, Joan IENCIU – Alba Iulia, ROMANIA

26 – 28 February 2009



CONCLUSIONS AND PROPOSALS

- -All these accomplishments are the result of the connection between theory and practice;
- -The description of the curricula shows that surveying students, during the four years of study, acquire enough knowledge and practical skills to work with computers and specialized surveying software;
- -These skills may increase the quality and productivity of the surveyor's work. They also become a huge advantage when using other computer software and other types of equipment in other surveying-related areas;
- -Trough the study of a wide range of topographic equipment and of computer software that are presently used in Romania and abroad, our young engineers are prepared to apply for jobs in Romania or in any member state of the European Union.



Thank you for your attention!

On Computerising Geodetic Surveys in the Context of Higher Education Luciana OPREA, Joan IENCIU – Alba Iulia, ROMANIA

26 – 28 February 2009 Vienna, Austria