### **SYLLABUS**

it mormation regarding the progr	
1.1 Higher education institution	Babeş-Bolyai University Cluj-Napoca
1.2 Faculty	Faculty of Mathematics and Computer Science
1.3 Department	Department of Mathematics
1.4 Field of study	Mathematics
1.5 Study cycle	Master
1.6 Study programme /	Didactic Mathematics
Qualification	

## 1. Information regarding the programme

## 2. Information regarding the discipline

2.1 Name of the discipline	Topics of Mathematical Analysis III (teacher specialization)
2.2 Course coordinator	Prof. Nicolae Popovici, Ph.D. habil.
2.3 Seminar coordinator	Prof. Nicolae Popovici, Ph.D. habil.
2.4. Year of study22.5 Semester	4 2.6. Type of Exam 2.7 Type of discipline Optional evaluation

## 3. Total estimated time (hours/semester of didactic activities)

3.1 Hours per week	3	Of which: 3.2 course	2	3.3 seminar/laboratory	1
3.4 Total hours in the curriculum	36	Of which: 3.5 course	24	3.6 seminar/laboratory	12
Time allotment:					hours
Learning using manual, course supp	ort, bi	bliography, course not	es		56
Additional documentation (in librari	es, or	electronic platforms, f	field o	locumentation)	23
Preparation for seminars/labs, home	work,	papers, portfolios and	essay	/S	40
Tutorship					10
Evaluations					35
Other activities					-
3.7 Total individual study hours 164					
3.8 Total hours per semester	Total hours per semester200				
3.9 Number of ECTS credits 8					

## 4. Prerequisites (if necessary)

4.1. curriculum	Mathematical Analysis 1 (on R)	
	• Mathematical Analysis 2 (Calculus on R <sup>n</sup> )	
4.2. competencies	Ability to use abstract notions, theoretical results and practical	
	methods of Mathematical Analysis.	

## 5. Conditions (if necessary)

5.1. for the course	• Lecture hall equipped with blackboard and beamer
5.2. for the seminar /lab activities	Classroom equipped with blackboard

# 6. Specific competencies acquired

		To use	appropriate	theoretical	rogulta	and	mathada	for	colving	different	alassas	of
al	es				resuits	anu	methous	101	solving	umerent	Classes	01
<b>n</b>	IJ	mathema	atical analysis	problems.								
sic	er											
es	et											
of	du											
Pr	competencies											
	J											
	S	To app	oly rigorous a	nd efficient	work rul	es, by	adopting a	a resp	oonsible a	ttitude tow	vards the	
al	competencies		• •				1 0	-				
LS	ŭ	scienti	ific and didac	tic activities	. To deve	nop u	le own cre	alive	potential	in specific	e areas,	
ve	ste	follow	ving the profes	ssional ethic	al norms	and 1	orinciples.					
ISI	þe		0 1				<b>r</b>					
Transversal	H											
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## 7. Objectives of the discipline (outcome of the acquired competencies)

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7.1 General objective of	Enhanced understanding of some special topics in Mathematical Analysis
the discipline	useful to high-school teachers.
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7.2 Specific objective of	Students should acquire solving skills for challenging problems, by an in-
1 0	
the discipline	depth study of key notions and fundamental theoretical results.

# 8. Content

8.1 Course	Teaching methods	Remarks
1. Sequences of (extended) real numbers; limit	Direct instruction, mathematical	
points; limit inferior and limit superior.	proof, exemplification	
2. Sequences defined by linear recurrences with	Direct instruction, mathematical	
constant coefficients; special classes of sequences	proof, exemplification	
defined by nonlinear recurrences.		
3. Toeplitz theorem and some of its consequences	Direct instruction, mathematical	
(Stolz-Cesaro and Cauchy theorems).	proof, exemplification	
4. Series of real numbers: Cauchy and Riemann	Direct instruction, mathematical	
theorems concerning the permutations of absolutely	proof, exemplification	
convergent and of conditionally convergent series,		
respectively.		
5. Abel, Cauchy and Mertens theorems concerning	Direct instruction, mathematical	
the product of two series.	proof, exemplification	
6. Semi-continuous functions; characterizations of	Direct instruction, mathematical	
semi-continuity by means of the	proof, exemplification	
epigraph/hypograph, level sets, and sequences.		
7. Uniformly continuous functions and their	Direct instruction, mathematical	
sequential characterization; Lipschitz and Hölder	proof, exemplification	
continuous functions.		
8. The Darboux property and antiderivability.	Direct instruction, mathematical	
	proof, exemplification	
9. Riemann integrable functions.	Direct instruction, mathematical	
	proof, exemplification	
10. Convex functions (one variable);	Direct instruction, mathematical	

sided derivability. continuity).   In Characterizations of convexity by means of targent lines, first and second order derivatives.   Direct instruction, mathematical proof, exemplification     12. Convex functions (several variables) and their characterizations; subdifferentiability of convex functions.   Direct instruction, mathematical proof, exemplification     Bibliography   Direct instruction, mathematical proof, exemplification   Direct instruction, mathematical proof, exemplification     1. BRECKNER, B.E., POPOVICI, N.: Convexity and Optimization. An Introduction. Editura EFES, Cluj-Napoca, 2006.   Direct instruction, mathematical proof, exemplification     1. BRECKNER, B.E., POPOVICI, N.: Convexity and Optimization. An Introduction. Editura EFES, Cluj-Napoca, 1997.   Selected Topics.     1. BRECKNER, W. TRIF, T: Convex Functions and Related Functional Equations. Selected Topics.   Presa Universitară Clujcană, 2008.     3. COBZAS, Şt.: Analiză matematică. (Calcul diferențial). Presa Universitară Clujenaă, Cluj-Napoca, 1997.   Nol. III, Editura TelNOBIT, Timişoara, 1997. Vol. III, Editura TelNoBIT, Timişoara, 1997. Vol. III, Editura EUROBIT, Timişoara, 1997.   Nol. III, Editura EUROBIT, Timişoara, 1997.     6. NICOLESCU, M.: Analiză matematică. Vol. II, Editura Tehnică, Bucureşti, 1958.   Remarks     7. ROBERTS, A.W., VAREEG, D.E.: Convex Functions. Academic Press, 1973.   RUDIN, W. Principles of Mathematical Janalysis. 2nd Edition, McGraw-Hill, New York, 1964.     9. SIRECTUI, Gh.: Calcud diferențial și integral. Vol. I: Noțiuni fundamentale. Editura EURO			1
11. Characterizations of convexity by means of tangent lines, first and second order derivatives.   Direct instruction, mathematical proof, exemplification     12. Convex functions (several variables) and their characterizations; subdifferentiability of convex functions.   Direct instruction, mathematical proof, exemplification     Bibliography   1. BRECKNER, B.E., POPOVICI, N.: Convexity and Optimization. An Introduction. Editura EFES, Cluj-Napoca, 2006.     2. BRECKNER, WW, TRIF, T.: Convex Functions and Related Functional Equations. Selected Topics. Presa Universitara Clujeană, 2008.   ScoBZAS, Şt.: Analiză matematică. Clacul diferențial). Presa Universitară Clujeană, Cluj-Napoca, 1997.     3. COBZAS, Şt.: Analiză matematică. Clacul diferențial). Presa Universitară Clujeană, Cluj-Napoca, 1997.   NARUŞCIAC, I: Analiză matematică. Vol. 1 şi II, Editura EUROBIT, Timişoara, 1997. Vol. III, Editura EUROBIT, Timişoara, 1997. Vol. III, Editura EUROBIT, Timişoara, 1998.     6. NICOLESCU, M.: Analiză matematică. Vol. 1 şi II, Editura Tehnică, Bucureşti, 1958.   ROBERTS, A.W., VARBERG, D.E.: Convex Functions. Academic Press, 1973.     8. RUDIN, W.: Principles of Mathematical Analysis. Zond Edition, McGraw-Hill, New York, 1964.   SIRETCHI, Gh.: Calcul diferențial şi integral. Vol. 1: Noțiuni fundamentale. Editura Ştimţifică şi Enciclopedică, Bucureşti, 1985.     8.2 Seminar / laboratory   Teaching methods   Remarks     8.2 Sequences of mich the set of fimit points is an interval; Dirichlet and Kronecker theorems.   Problem-based instruction, debate, mathematical proofs     4. Sequences defined by	characterizations and regularity properties (one	proof, exemplification	
tangent lines, first and second order derivatives.   proof, exemplification     12. Convex functions (several variables) and their characterizations; subdifferentiability of convex functions.   Direct instruction, mathematical proof, exemplification     Bibliography   1. BRECKNER, B.E., POPOVICI, N.: Convexity and Optimization. An Introduction. Editura EFES. Cluj-Napoca, 2006.   Selected Topics.     2. BRECKNER, W.W., TRIF, T.: Convex Functions and Related Functional Equations. Selected Topics. Presa Universitara Clujeană, 2008.   Selected Topics.     3. COBZAŞ, Şt.: Analiză matematică (Calcul diferențial). Presa Universitară Clujeană, Cluj-Napoca, 1997.   Nature Stata Selected Topics.     9. MEGAN. Bazele analizci matematică. Vol. I și II, Editura FUROBIT, Timişoara, 1997. Vol. III, Editura FUROBIT, Timişoara, 1997.   Nature Stata Selected Topics.     9. NEECCH, M.: Analiză matematică. Vol. I și II, Editura Teuncă, București, 1958.   ROBERTS, A.W., VARBERG, D.E.: Convex Functions. Academic Press, 1973.     8. NEODIN, W.: Principles of Mathematical Analysis. 2nd Edition, McGraw-Hill, New York, 1964.   Strettera Stimițifică și Enciclopedică, București, 1985.     8. 2 Seminar / laboratory   Teaching methods   Remarks     8. 2 Sequences limit points; limit inferior and limit superior; convergence.   Problem-based instruction, debate, mathematical proofs     4. Sequences defined by nonlinear recurrences.   Problem-based instruction, debate, mathematical proofs     5. Applications of Toeplitz and		Direct instruction mothematical	
12. Convex functions (several variables) and their characterizations; subdifferentiability of convex motions.   Direct instruction, mathematical proof, exemplification     Bibliography   1. BRECKNER, B.E., POPOVICI, N.: Convexity and Optimization. An Introduction. Editura EFES, Cluj-Napoca, 2006.     2. BRECKNER, W.W., TRIF, T.: Convex Functions and Related Functional Equations. Selected Topics. Presa Universitara Clugenañ, 2008.     3. COBZAŞ, Şt.: Analiză matematică (Calcul diferențial). Presa Universitară Clugenañ, Cluj-Napoca, 1997.     4. MARUŞCIAC, I: Analiză matematică. Partea II. Universitatea "Babeş-Bolyai" Cluj-Napoca, 1983.     5. MEGAN, M.: Bazele analizei matematică. Vol. I şi II, Editura EUROBIT, Timișoara, 1998.     6. NICOLESCU, M.: Analiză matematică. Vol. II, Editura Tehnică, Bucureşti, 1958.     7. ROBERTS, A.W., VARBERG, D.E.: Convex Functions. Academic Press, 1973.     8. RUDIN, W.: Principles of Mathematical Analysis. Zun Edition, McGraw-Hill, New York, 1964.     9. SIRETCHI, Gh.: Calcul diferențial şi integral. Vol. 1: Noțiuni fundamentale. Editura Ştimțifică şi Enciclopedică, Bucureşti, 1985.     8.2 Seminar / laboratory   Teaching methods     1. Sequences clefined by linear recurrences.   Problem-based instruction, debate, mathematical proofs     2. Sequence for which the set of limit points is an interval: Dirichlet and Kronecker theorems.   Problem-based instruction, debate, mathematical proofs     3. Sequences defined by linear recurrences.   Problem-based instruction, debate, mathematical proo	• •	· · · · · · · · · · · · · · · · · · ·	
characterizations; subdifferențiability of convex functions. Bibliography 1. BRECKNER, B.E., POPOVICI, N.: Convexity and Optimization. An Introduction. Editura EFES, Cluj- Napoca, 2006. 3. COBZAŞ, Şt.: Analiză matematică (Calcul diferențial). Presa Universitară Clujeană, 2008. 3. COBZAŞ, Şt.: Analiză matematică (Calcul diferențial). Presa Universitară Clujeană, Cluj-Napoca, 1983. 5. MEGAN, N.: Bazele analizei matematică. Partea II. Universitatea "Babeş-Bolyai" Cluj-Napoca, 1983. 5. MEGAN, N.: Bazele analizei matematică. Vol. 1 și II, Editura EUROBIT, Timişoara, 1997. Vol. III, Editura EUROBIT, Timişoara, 1998. 6. NICOLESCU, M.: Analiză matematică. Vol. 1 și II, Editura Tehnică, București, 1958. 7. ROBERTS, A.W. VARBERG, D.E.: Convex Functions. Academic Press, 1973. 8. RUDN, W: Principles of Mathematical Analysis. 2nd Edition, McGraw-Hill, New York, 1964. 9. SIREȚCHI, Gh.: Calcul diferențial și integral. Vol. 1: Noțiuni fundamentale. Editura Ştiinţifică și Enciclopedică, București, 1985. 8. 2 Seminar / laboratory 7. Teaching methods 8. Sequences: limit points; limit inferior and limit superior; convergence. 9. Problem-based instruction, debate, mathematical proofs 3. Sequences defined by Inear recurrences. 9. Problem-based instruction, debate, mathematical proofs 5. Applications of Toeplitz and Stolz-Cesaro theorems. 6. Remarkable series of real numbers. 7. Wallis and Stirling formulae. 9. Problem-based instruction, debate, mathematical proofs 9. Semicontinous functions. 9. Problem-based instruction, debate, mathematical proofs 10. Uniform continuity; Lipschitz continuous 11. The Darboux property and antiderivability. 12. Convex functions; applications to inequalities. 9. Problem-based instruction, debate, mathema		· · · · · · · · · · · · · · · · · · ·	
functions.   Bibliography     Bibliography   I. BRECKNER, B.E., POPOVICI, N.: Convexity and Optimization. An Introduction. Editura EFES, Cluj-Napoca, 2006.     2. BRECKNER, W.W., TRIF, T.: Convex Functions and Related Functional Equations. Selected Topics. Presa Universitară Clujeană, Cluj-Napoca, 1997.     3. COBZAŞ, ŞL: Analiză matematică (Calcul diferențial). Presa Universitară Clujeană, Cluj-Napoca, 1983.     5. MEGAN, M.: Bazele analizei matematică. Vol. I şi II, Editura EUROBIT, Timișoara, 1997. Vol. III, Editura EUROBIT, Timișoara, 1998.     6. NICOLESCU, M.: Analiză matematică. Vol. I şi II, Editura EUROBIT, Timișoara, 1997. Vol. III, Editura FUROBIT, Timișoara, 1998.     6. NICOLESCU, M.: Analiză matematică. Vol. II, Editura EUROBIT, Timișoara, 1997. Vol. III, Editura FUROBIT, Timișoara, 1998.     8. RUDIN, W.: Principles of Mathematical Analysis. 2nd Edition, McGraw-Hill, New York, 1964.     9. SIRETCHI, Gh.: Calcul diferențial și integral. Vol. 1: Noțiuni fundamentale. Editura Stinițifică și Enciclopedică, București, 1985.     8. 2 Semina / laboratory   Teaching methods     1. Sequences: limit points; limit inferior and limit   Problem-based instruction, debate, mathematical proofs     2. Sequence for which the set of limit points is an interval; Dirichlet and Kronecker theorems.   Problem-based instruction, debate, mathematical proofs     3. Sequences defined by nonlinear recurrences.   Problem-based instruction, debate, mathematical proofs     5. Applications of Toeplitz and Stolz-Cesaro   Proble		· · · · · · · · · · · · · · · · · · ·	
Bibliography     1. BRECKNER, B.E., POPOVICI, N.: Convexity and Optimization. An Introduction. Editura EFES, Cluj-Napoca, 2006.     2. BRECKNER, W.W., TRIF, T.: Convex Functions and Related Functional Equations. Selected Topics. Presa Universitară Clujeană, 2008.     3. COBZAS, Şt.: Analiză matematică (Calcul diferențial). Presa Universitară Clujeană, Cluj-Napoca, 1997.     4. MARUŞCIAC, I: Analiză matematică. Partea II. Universitara "Babeş-Bolyai" Cluj-Napoca, 1983.     5. MEGAN, M.: Bazele analizei matematice. Vol. I și II, Editura EUROBIT, Timişoara, 1997. Vol. III, Editura Tehnică, București, 1958.     7. ROBERTS, A.W., VARBERG, D.E.: Convex Functions. Academic Press, 1973.     8. NICOLESCU, M.: Analiză matematică. Vol. II, Editura Tehnică, București, 1958.     7. ROBERTS, A.W., VARBERG, D.E.: Convex Functions. Academic Press, 1973.     8. RUDIN, W.: Principles of Mathematical Analysis. 2nd Edition, McGraw-Hill, New York, 1964.     9. SIREȚCHI, Gh.: Calcul diferențial și integral. Vol. 1: Noțiuni fundamentale. Editura Stinifică și Enciclopedică, București, 1985.     8. Z Seminar / laboratory   Teaching methods     1. Sequences: limit points; limit inferior and limit superior; convergence.   Problem-based instruction, debate, mathematical proofs     2. Sequences defined by linear recurrences.   Problem-based instruction, debate, mathematical proofs     5. Applications of Toeplitz and StoIz-Cesaro theorems.   Problem-based instruction, debate, mathematical proofs     6. Remarkable serie		proof, exemplification	
1. BRECKNER, B.E., POPOVICI, N.: Convexity and Optimization. An Introduction. Editura EFES, Cluj-Napoca, 2006.     2. BRECKNER, W.W., TRIF, T.: Convex Functions and Related Functional Equations. Selected Topics. Presa Universitară Clujeană, Cluj-Napoca, 1997.     3. COBZAS, Şt.: Analiză matematică. Calcul diferențial). Presa Universitară Clujeană, Cluj-Napoca, 1983.     5. MEGAN, M.: Bazele analizei matematică. Vol. I și II, Editura EUROBIT, Timișoara, 1998.     6. NICOLESCU, M.: Analiză matematică. Vol. I, Fidura Funcă, București, 1958.     7. ROBERTS, A.W., VARBERG, D.E.: Convex Functions. Academic Press, 1973.     8. RUDIN, W.: Principles of Mathematical Analysis. 2nd Edition, McGraw-HIII, New York, 1964.     9. SIRETCHI, Gh.: Calcul diferențial și integral. Vol. 1: Noțiuni fundamentale. Editura Ştiințifică și Enciclopedică, București, 1985.     8.2 Seminar / laboratory   Teaching methods     1. Sequences: limit points; limit inferior and limit proints is an interval; Dirichlet and Kronecker theorems.   Problem-based instruction, debate, mathematical proofs     3. Sequences defined by Inear recurrences.   Problem-based instruction, debate, mathematical proofs     5. Applications of Toeplitz and Stolz-Cesaro theorems.   Problem-based instruction, debate, mathematical proofs     6. Remarkable series of real numbers.   Problem-based instruction, debate, mathematical proofs     7. Wallis and Stirling formulae.   Problem-based instruction, debate, mathematical proofs     8. Taylor series.			
Napoca, 2006.     2. BRECKNER, W.W., TRIF, T.: Convex Functions and Related Functional Equations. Selected Topics. Presa Universitară Clujeană, Cluj-Napoca, 1997.     3. COBZAŞ, Şt.: Analiză matematică. Partea II. Universitatea "Babeş-Bolyai" Cluj-Napoca, 1983.     5. MEGGAN, M.: Bazele analizei matematică. Vol. I şi II, Editura Tehnică, Bucureşti, 1958.     6. NICOLESCU, M.: Analiză matematică. Vol. II, Editura Tehnică, Bucureşti, 1958.     7. ROBERTS, A.W., VARBERG, D.E.: Convex Functions. Academic Press, 1973.     8. RUDIN, W.: Principles of Mathematical Analysis. 201 Edition, McGraw-HIII, New York, 1964.     9. SIRETCHI, Gh.: Calcul diferențial și integral. Vol. 1: Noțiuni fundamentale. Editura Ştiințifică și Encielopedică, Bucureşti, 1985.     8.2 Seminar / laboratory   Teaching methods     1. Sequences: limit points; limit inferior and limit superior; convergence.   Problem-based instruction, debate, mathematical proofs     2. Sequence for which the set of limit points is an interval; Dirichlet and Kronecker theorems.   Problem-based instruction, debate, mathematical proofs     4. Sequences defined by nonlinear recurrences.   Problem-based instruction, debate, mathematical proofs     5. Applications of Toeplitz and Stolz-Cesaro theorems.   Problem-based instruction, debate, mathematical proofs     6. Remarkable series of real numbers.   Problem-based instruction, debate, mathematical proofs     7. Wallis and Stirling formulae.   Problem-based instruction, debate, mathematic		d Optimization An Introduction Ed	litura FFFS Clui-
2. BRECKNER, W.W., TRIF, T.: Convex Functions and Related Functional Equations. Selected Topics. Presa Universitară Clujeană, 2008.     3. COBZAŞ, Şt.: Analiză matematică (Calcul diferențial). Presa Universitară Clujeană, Cluj-Napoca, 1997.     4. MARUŞCIAC, I: Analiză matematică. Partea II. Universitatea "Babeş-Bolyai" Cluj-Napoca, 1983.     5. MEGAN, M.: Bazele analizei matematice. Vol. I şi II, Editura EUROBIT, Timişoara, 1997. Vol. III, Editura EUROBIT, Timişoara, 1998.     6. NICOLESCU, M.: Analiză matematică. Vol. II, Editura Tehnică, București, 1958.     7. ROBERTS, A.W., VARBERG, D.E.: Convex Functions. Academic Press, 1973.     8. RUDIN, W.: Principles of Mathematical Analysis. 2nd Edition, McGraw-Hill, New York, 1964.     9. SIREȚCHI, Gh.: Calcul diferențial și integral. Vol. 1: Noțiuni fundamentale. Editura Ştiimțifică și Enciclopedică, București, 1985.     8. 2 Seminar / laboratory   Teaching methods     1. Sequences: limit points; limit inferior and limit superior; convergence.   Problem-based instruction, debate, mathematical proofs     2. Sequence for which the set of limit points is an interval; Dirichlet and Kronecker theorems.   Problem-based instruction, debate, mathematical proofs     4. Applications of Toeplitz and Stolz-Cesaro theorems.   Problem-based instruction, debate, mathematical proofs     5. Applications of real numbers.   Problem-based instruction, debate, mathematical proofs     7. Wallis and Stirling formulae.   Problem-based instruction, debate, mathematical proofs		d optimization. 7 in mitoduction. Le	inturu Er Eb, Cluj
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3. COBZAŞ, Şt.: Analiză matematică (Calcul diferențial). Presa Universitară Clujeană, Cluj-Napoca, 1983.     4. MARUŞCIAC, I: Analiză matematică. Partea II. Universitatea "Babeş-Bolyai" Cluj-Napoca, 1983.     5. MEGAN, M.: Bazele analizei matematică. Vol. I și II, Editura EUROBIT, Timișoara, 1997. Vol. III, Editura EUROBIT, Timișoara, 1998.     6. NICOLESCU, M.: Analiză matematică. Vol. II, Editura Tehnică, București, 1958.     7. ROBERTS, A.W., VARBERG, D.E.: Convex Functions. Academic Press, 1973.     8. RUDIN, W.: Principles of Mathematical Analysis. 2nd Edition, McGraw-Hill, New York, 1964.     9. SIREŢCHI, Gh.: Calcul diferențial și integral Vol. I: Noțiuni fundamentale. Editura Ștințifeă și Enciclopedică, București, 1985.     8. 2 Seminar / laboratory   Teaching methods     1. Sequences: limit points; limit inferior and limit superior; convergence.   Problem-based instruction, debate, mathematical proofs     3. Sequence for which the set of limit points is an interval; Dirichlet and Kronecker theorems.   Problem-based instruction, debate, mathematical proofs     4. Sequences defined by nonlinear recurrences.   Problem-based instruction, debate, mathematical proofs     5. Applications of Toeplitz and Stolz-Cesaro   Problem-based instruction, debate, mathematical proofs     7. Wallis and Stirling formulae.   Problem-based instruction, debate, mathematical proofs     8. Taylor series.   Problem-based instruction, debate, mathematical proofs     9. Semicontinous functions.			
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# **9.** Corroborating the content of the discipline with the expectations of the epistemic community, professional associations and representative employers within the field of the program

The course ensures a solid theoretical background, according to national and international standards

#### **10. Evaluation**

Type of activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Share in the	
			grade (%)	
10.4 Course	- Knowledge of	Written exam	75%	
	theoretical concepts and			
	theoretical results;			
	- Ability to solve			
	practical exercises and			
	theoretical problems			
10.5 Seminar/lab	Active participation to	Continuous evaluation	25%	
activities	tutorials (problem			
	solving).			
10.6 Minimum performance standards				
The final grade should be greater than or equal to 5.				

Date	Signature of course coordinator	Signature of seminar coordinator
03.05.2019	Prof. Nicolae Popovici, Ph.D. habil.	Prof. Nicolae Popovici, Ph.D. habil.

Date of approval

Signature of the head of department

Prof. Octavian Agratini, Ph.D.

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