SYLLABUS

1. Information regarding the programme

1.1 Higher education institution	Babeş-Bolyai University, Cluj-Napoca
1.2 Faculty	Mathematics and Computer Science
1.3 Department	Mathematics
1.4 Field of study	Mathematics
1.5 Study cycle	Licence
1.6 Study programme / Qualification	Mathematics and Computer Science

2. Information regarding the discipline

2.1 Name of the discipline	Basic Mathematics						
2.2 Course coordinator							
2.3 Seminar coordinator	Trif Tiberiu-Vasile						
2.4 Year of study	1	2.5 Semester	1	2.6. Type of evaluation	C	2.7 Type of discipline	facultative
2.8 Code of the discipline	MLR0018						

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

3.1 Hours per week	2	Of which: 3.2 course	0	3.3 seminar/laboratory	2
3.4 Total hours in the curriculum	28	Of which: 3.5 course	0	3.6 seminar/laboratory	28
Time allotment:					hours
Learning using manual, course support, bibliography, course notes					10
Additional documentation (in libraries, on electronic platforms, field documentation)					10
Preparation for seminars/labs, homework, papers, portfolios and essays					27
Tutorship					
Evaluation					
Other activities:					

3.7 Total individual study hours	47
3.8 Total hours per semester	75
3.9 Number of ECTS credits	3

4. Prerequisites (if necessary)

4.1 curriculum	• Calculus at the level of technological high schools
4.2 competencies	• Mathematical thinking abilities

5. Conditions (if necessary)

5.1 For the course	•
5.2 For the seminar/lab activities	•

6. Specific competencies aquired

Professional competencies	• C1.4 Recognizing the main classes /types of mathematical problems and selecting the appropriate methods and techniques for their solving • C2.1 Identifying the basic notions used to describe some processes and phenomena
Transversal competencies	• CT1 Application of efficient and rigorous working rules, manifest responsible attitudes towards the scientific and didactic fields, respecting the professional and ethical principles.

7. Objectives of the discipline (outcome of the acquired competencies)

7.1 General objective of the discipline	• Knowledge of the basic notions and techniques of mathematical analysis
7.2 Specific objectives of the discipline	• Presentation of techniques for solving problems related to sequences of real numbers • Presentation of techniques for solving problems related to limits of functions • Presentation of techniques for solving problems related to the study of real valued functions of a real variable • Presentation of techniques for calculating undefined and defined integrals

8. Content

8.1 Course	Teaching methods	Remarks
Bibliography		
8.2 Seminar / laboratory	Teaching methods	Remarks
1+2. Classical sequences of real numbers	Lecture, discussion, problematisation	
3+4. Limits of sequences	Lecture, discussion, problematisation	
5+6. Limits of functions	Lecture, discussion, problematisation	
7. Continuous functions	Lecture, discussion, problematisation	
8+9+10. Study of real valued functions of a real variable, mean value theorems, applications	Lecture, discussion, problematisation	
11+12. Primitives	Lecture, discussion, problematisation	
13+14. Riemann integrals and applications	Lecture, discussion, problematisation	

Bibliography

1. DUCA D. I., DUCA E.: Exercitii si probleme de analiza matematica. Vol. I si II . Casa Cart ii de Stiinta, Cluj-Napoca, 2009
2. SIRETCHI GH.: Calcul diferential si integral. Vol 2.Exercitii. Editura Stiintifica si Enciclopedica, Bucuresti, 1985

9. Corroborating the content of the discipline with the expectations of the epistemic community, professional associations and representative employers within the field of the programme

The aim of the discipline is to bring the graduates of the technological high schools and those of the specialization "Sciences of Nature" to the level of a graduate of the specialization "Mathematics-informatics" in terms of preparation for the discipline "Mathematical analysis".

10. Evaluation

Type of activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Share in grade
10.4 Course			
10.5 Seminar/lab	Knowledge of basic techniques for solving problems in Calculus	Written exam at the end of the semester	100%
10.6 Minimum performance standards **5**			

Date Signature of course coordinator Signature of seminar coordinator

28.4.2021 ....

Date of approval Signature of the head of departament

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