SYLLABUS

1. Information regarding the programme

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

2. Information regarding the discipline

2.1 Name of the discipline (ro)	Geometry 2 Geometrie 2					
2.2 Course coordinator		Lect. Dr. Iulian Simion				
2.3 Seminar coordinator		Lect. Dr. Iulian Simion				
2.4 Year of study	1	2.5 Semester	2	2.6. Type of evaluation	VP	2.7 Type of discipline	Compulsory
2.8 Disciplinei code	MLE0015					

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

3.1 Hours per week	4	Of which: 3.2 course	2	3.3 seminar	2
3.4 Total hours in the curriculum	56	Of which: 3.5 course	28	3.6 seminar	28
Time allotment:					hours
Learning using manual, course support, bibliography, course notes					15
Additional documentation (in libraries, on electronic platforms, field documentation)					15
Preparation for seminars/labs, homework, papers, portfolios and essays					25
Tutorship					10
Evaluations					3
Other activities:					1

3.7 Total individual study hours	69
3.8 Total hours per semester	125
3.9 Number of ECTS credits	6

4. Prerequisites (if necessary)

4.1 curriculum	⌐ʌ Basic knowledege in algebra and analysis ⌐ʌ A first course on analytic geometry
4.2 competencies	⌐ʌ

5. Conditions (if necessary)

5.1 for the course	⌐ʌ
5.2 for the seminar /lab activities	⌐ʌ

6. Specific competencies acquired

<table>
<tr><td rowspan="2">Professional competencies</td><td>⌐ʌ Systematic solving of problems</td></tr>
</table>

Professional competencies	⌐ʌ Systematic solving of problems ⌐ʌ Interdisciplinary approach and thinking ⌐ʌ Modeling and abstraction
Transversal competencies	⌐ʌ Aptitude of moving from abstract theory to concrete problems ⌐ʌ Critical thinking ⌐ʌ Discussing obtained knowledege ⌐ʌ Applying obtained knowledge

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

7.1 General objective of the discipline	Basic notions and methods în the context of affine geometry
7.2 Specific objective of the discipline	Classification results and structural results for affine morphism linking abstract thinking with practical proplems

8. Content

8.1 Course	Teaching methods	Remarks
Affine spaces	Exposition, proofs, examples	One lecture
Coordinates in affine spaces	Exposition, proofs, examples	Two lecture
Affine hulls	Exposition, proofs, examples	One lecture
Convex sets	Exposition, proofs, examples	Two lectures
Affine morphisms - Structural results - Projections and reflections - Clasification results in dimension 2 and 3 - Affine morphism in dim 2 and complex numbers - Affine transformations and quaternions - Finite groups of isometries in dim 2 and 3	Exposition, proofs, examples	Eight lectures
Bibliography I. Simion, Geometry 2 – Lecture notes, 2018. (contains further relevant bibliografical references)		

8.2 Seminar	Teaching methods	Remarks
Affine spaces	Dialog, problem solving	One tutorial
Coordinates in affine spaces	Dialog, problem solving	Two tutorials
Affine hulls	Dialog, problem solving	One tutorial
Convex sets	Dialog, problem solving	Two tutorials
Affine morphisms - Structural results - Projections and reflections - Clasification results in dimension 2 - Affine morphism în dim 2 and complex numbers - Classification results in dimension 3 - Affine transformations and quaternions - Finite groups of isometries in dim 2 and 3	Dialog, problem solving	Eight tutorials
Bibliografie I. Simion, Geometry 2 – Lecture notes, 2018. (contains further relevant bibliografical references)		

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 material of this course serves other courses
- - for example: affine transformations in 2D and 3D are necessary examples for a group theory course, quaternions are also discussed in the context of rotations
- - Building on a previous geometry course, clasification results are presented
- The link to practical problem is made via different mini-topics which are presented from the perspective of the theory at hand
- - convex hulls, Voronoi cells, quaternions

10. Evaluation

Type of activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Share in the grade (%)
10.4 Course	Critical grasp of the learned material, ability to use what was learned	Two written partial exams at the middle and end of the semester	each 40%
10.5 Seminar	Active participation at the seminars, ability to use the methods learned	Dialog, rezolvare de probleme, studiu individual	20%
10.6 Minimum performance standards			
Attendance of tutorials			
At least grade 5 for each of the partial exams			

Date	Signature of course coordinator	Signature of seminar coordinator
15. April 2018	Lect. Dr. Iulian Simion	Lect. Dr. Iulian Simion

Date of approval   Signature of the head of department

....   Prof. Dr. Octavian Agratini