<table>
<tr><td>Module designation</td><td>Transformational Geometry
Course code: 8420202004</td></tr>
<tr><td>Semester(s) in which the module is taught</td><td>Semester 4 (Second year)</td></tr>
<tr><td>Person responsible for the module</td><td>Coordinator: Dr. Susanah, M.Pd
Teaching staff: Dr. Susanah, M.Pd.; Dr. Lestariningsih, S.Pd., M.Pd.; Evangelista Lus Windyana Palupi, S.Pd., M.Sc.</td></tr>
<tr><td>Language</td><td>Indonesian</td></tr>
<tr><td>Relation to curriculum</td><td>Elective</td></tr>
<tr><td>Teaching methods</td><td>Lectures, tutorial assignments, and individual study
Media and tools: Slides and LCD projectors, whiteboard</td></tr>
<tr><td>Workload (incl. contact hours, self-study hours)</td><td>(Estimated) total workload: 2 CU × 170 minutes × 16 weeks = 5,440 minutes = 90.67 hours (≈ 3.18 ECTS)
Contact hours: lectures, 2 × 50 minutes per week × 16 weeks = 26.67 hours (class hours per week: 340 minutes = 5.67 hours, including structured activities)
Private study including examination preparation: structured assignments, 2 × 60 minutes per week × 16 weeks = 32.00 hours; independent study, 2 × 60 minutes per week × 16 weeks = 32.00 hours (total 64.00 hours)</td></tr>
<tr><td>Credit points</td><td>2 CU (3.18 ECTS)
1 CU = 170 minutes per week × 16 weeks = 45.3 hours; 1 ECTS = 28.48 hours (144 CU = 229 ECTS), so 1 CU = 1.59 ECTS (UNESA Rector's Decree No. 736/HK/KM/2023).</td></tr>
<tr><td>Required and recommended prerequisites for joining the module</td><td>None</td></tr>
<tr><td>Module objectives/intended learning outcomes</td><td>Programme learning outcomes (PLO) addressed:
PLO-5: Apply the basic principles of mathematics to solve simple mathematical problems.
PLO-6: Demonstrate mathematical knowledge and insight.</td></tr>
<tr><td>Content</td><td>Investigate a function as a transformation. Prove theorems related to transformations and isometries. Define translations and prove the related theorems. Define the concept of reflection. Prove theorems associated with reflections. Define half-turns and apply them to solve relevant problems. Define rotations and identify the characteristics of their images. Prove theorems related to rotations. Solve problems involving compositions of transformations. Identify applications of transformational geometry concepts in education and/or real-life contexts. Design and produce a product by implementing transformational geometry concepts.</td></tr>
<tr><td>Examination forms</td><td>Final score is calculated from the weekly assessment scheme below (CLO/PLO addressed and weight of each assessment):
<table>
<tr><th>Week</th><th>CLO</th><th>PLO</th><th>Weight (%)</th></tr>
<tr><td>1</td><td>CLO-1</td><td>PLO-5</td><td>5</td></tr>
<tr><td>2</td><td>CLO-2</td><td>PLO-6</td><td>5</td></tr>
<tr><td>3</td><td>CLO-3</td><td>PLO-5</td><td>5</td></tr>
<tr><td>4</td><td>CLO-4</td><td>PLO-5</td><td>5</td></tr>
</table></td></tr>
</table>

	5	CLO-5	PLO-6	5
	6	CLO-6	PLO-5	5
	7	CLO-7	PLO-5	5
	8	CLO-8	PLO-6	5
	9	CLO-9	PLO-5	10
	10	CLO-10	PLO-5	5
	11	CLO-10	PLO-5	5
	12	CLO-11	PLO-6	5
	13	CLO-11	PLO-6	10
	14	CLO-11	PLO-6	10
	15	CLO-11	PLO-6	5
	16	CLO-11	PLO-6	10

Study and examination requirements

Students are considered competent and pass if the final score calculated from the score of midterm exam, assignments, participation, and final exam is at least 55 or C.

Final index (grade conversion):

Index	Converted score	Score range (A = final score)
A	4.00	85 ≤ A ≤ 100
A-	3.75	80 ≤ A < 85
B+	3.50	75 ≤ A < 80
B	3.00	70 ≤ A < 75
B-	2.75	65 ≤ A < 70
C+	2.50	60 ≤ A < 65
C	2.00	55 ≤ A < 60
D	1.00	40 ≤ A < 55
E	0.00	0 ≤ A < 40

Reading list

1. Budiarto, M.T. 2015. Geometri Transformasi. Surabaya: Unesa University Press Anggota IKAPI.
2. Eccles, Frank R. 1971. An Introduction to Transformational Geometry. California: Addison Wesley Publishing Company.
3. Martin,George F. 1980. Transformational Geometry an Introduction to Symmetry. New York: Springer- Verlag.