

M007	Obligatory – Semester 2	<b>Elementary Mathematics II</b>	L+P+S 2+2+0	ECTS 6
------	-------------------------	----------------------------------	----------------	-----------

**Course objectives.** To refresh and broaden students' knowledge of elementary mathematics, which is necessary as a strong base of the fundamental mathematical knowledge for further study.

**Course prerequisites.** Elementary Mathematics I.

**Syllabus.**

1. Equations, inequalities and inequations. Rational and irrational equations and inequations. Equations and inequations with absolute value. Exponential and logarithmic equations and inequations. Trigonometric equations and inequations.
2. Applications of trigonometry. Sine and cosine theorem. Trigonometric equalities in a right triangle, in other geometrical figures.
3. Analytic geometry of plane. Rectangular coordinate system (in a plane and space). Distance between two points. Straight line. Circle. Ellipse. Hyperbola. Parabola. Transformation of coordinates. Polar coordinates. Cone intersect with a plane. Theory of conic.

**Expected learning outcomes.**

After completing the course, students are expected to:

- solve rational and irrational equations, equations with absolute value, exponential and logarithmic equations and trigonometric equations;
- solve rational and irrational inequations, inequations with absolute value, exponential and logarithmic inequations and trigonometric inequations;
- use sine and cosine theorem for triangle;
- draw straight line in a plane, circle, ellipse, hyperbola and parabola and use their property;
- solve complicated problems by using concepts and methods from the course contents;
- mathematically prove validity of the method and formula used in this course.

**Teaching methods and student assessment.** Lectures and exercises are obligatory. The final examination consisting of a written and an oral part takes place upon completion of lectures and exercises. During the semester, knowledge of students is assessed by mid-term exams, which, if done successfully, can replace the written part of the final examination.

**Can the course be taught in English:** Yes.

**Basic literature:**

1. B. Pavković, D. Veljan, Elementarna matematika I, Školska knjiga, Zagreb, 2003.
2. B. Pavković, D. Veljan, Elementarna matematika II, Školska knjiga, Zagreb, 1995.

**Recommended literature :**

1. F. Ayres, P.A. Schmidt, Schaum's Outline of College Mathematics, McGraw-Hill, New York, 1998.
2. R. Cesarec, Analitička geometrija, Školska knjiga, Zagreb, 1957.
3. S. Lang, Basic Mathematics, Springer Verlag, Berlin, 1988.