Course title:	**Mathematics for engineers**			
Course code	***Course status***	***Semester***	***Number of ECTS credits***	***Lecture hours***
132001030	**Mandatory**	**I**	**6.5**	**2+2**

Study program:
Basic applied studies, ELECTRICAL ENGINEERING, study program: Computer engineering (studies last for 6 semesters, 180 ECTS credits).

Prerequisites:
No prerequisites required.

Course aims:
Through this course, students are introduced with some of the basic mathematical ideas, axioms and methods necessary for better understanding of the other courses, as well as for the creativity development.

Teacher(s) and assistant(s): **Ph.D. Milojica Jaćimović – teacher, Ph.D. Zoran Veljović – assistant, Mr Veselin Vlahović - assistant**

Teaching method:
Teaching lectures (including exercises). Studying, laboratory exercises, seminar papers, individually doing home exercises. Consultations.

Course synopsis: Analytical geometry. Line and plane equations in a space. Line equation in a plane.

Preliminary weeks	Preparation and semester enrolment.
I week	Real numbers. Real number set properties. Absolute value of number. Power of number.
II week	Elementary functions. Constant. Linear and rationaly linear functions. Square function.
III week	Exponential and logaritmic functions. Trigonometric functions. Inverse trygonometric functions.
IV week	Combinatorics elements. Variations. Combinations. Permutations. Binomial theorem. Vector algebra. Vectors – geometrical concept. Linear vector operations. Coordinate system.
V week	Vector algebra. Scalar, vector and combined vector product.
VI week	***First test***
VII week	***Free week***
VIII week	Complex numbers – operations, root operation, Moivre's equation.
IX week	Analytical geometry. Line equation in a plane.
X week	Matrix. Matrix operations. Matrix product. Determinant
XI week	System of linear equations. Gauss's algorithm. Matrix rank and Kronecker-Capelli theorem.
XII week	***Second test***
XIII week	Limit of a sequence. Limit of a function. Examples.
XIV week	Derivative of a function. Derivation rules. Derivative's applications.
XV week	Function exploration. Graph of a function.
XVI week	***Final exam***
Final week	Administrative procedures.
XVIII-XXI week	Additional lessons, correction of the final exam and administrative procedures.

STUDENT WORKLOAD

per week	per semester
6.5 credits x **40/30** = **8** hours and **40** minutes **Working hours structure**: **2** hours for teaching **2** hours for exercises **4** hours and **40** minutes for individual work, including consultations.	**Teaching and the final exam**: (**8** h **40** min) x **16** = **138** hours and **40** minutes. **Necessary preparation** (before semester): **2** x (**8** h **40** min) = **17** h and **20** min. **Total work hours for the course**: **6.5** x **30** hours = **195** hours **Additional hours** for preparing correction of the final exam, including the exam taking: up to **39** hours. **Work hours structure**: 138 hours and 40 minutes (lectures) + 17 hours and 20 minutes (preparation) + 39 hours (additional work)

Lessons attendance is mandatory for students, as well as doing home exercises and both tests.

Literature: Milojica Jaćimović, Predrag Stanišić, *Matematika*. Štamparija PRINT. Podgorica, 2001

The forms of knowledge testing and grading:
- 4 home exercises carry **4** points total (**1** point each)
- Each test carries **23** points (**46** points total).
- Final exam carries **50** points.

Student gets the passing grade by collecting **51** points at least.

Special remarks for the course: Laboratory exercises are organized for student groups with two students.

Teacher(s) who provided the information: Ph.D. Milenko Mosurović – assistant professor

Remark: