

Course title:	Mathematics IV
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Course code	Course status	Semester	Number of ECTS credits	Lecture hours
131004180	Mandatory	IV	6.5	3+2

Study program: Basic academic studies, ELECTRICAL ENGINEERING, study program: Power systems and Control (studies last for 6 semesters, 180 ECTS credits).	
Prerequisites: Passed final exams in courses Mathematics I and Mathematics II .	
Course aims: This course provides students with a mathematical knowledge necessary for understanding other (professional) disciplines.	
Teacher(s) and assistant(s) first and last names: Ph.D. Milojica Jaćimović – teacher Rajko Čalasan - assistant	
Studying method: Lectures, exercises, individual work on tasks, consultations.	
Course synopsis:	
Preliminary weeks	Preparation and semester enrolment.
I week	First- and second-order partial differential equations. Examples.
II week	Basic partial equations in an electrical engineering. <i>Home exercise</i> .
III week	The field of complex numbers. Limit and derivative of a function of a complex variable. Examples.
IV week	Cauchy-Riemann conditions. Conformal mapping. Bilinear mapping.
V week	Integral of a complex function and Cauchy theorems. <i>Home exercise</i> .
VI week	First test
VII week	Free week
VIII week	Taylor series and Laurent series. Singularities of a complex function.
IX week	Remainder calculus. Laplace transform and inverse Laplace transform. Applications. <i>Home exercise</i> .
X week	Probability space. Examples. Conditional probabilities. Bayes' formula.
XI week	Random variable. Binomial distribution. Poisson and Gaussian distribution. <i>Home exercise</i> .
XII week	Second test
XIII week	Mathematical expectation and dispersion. Linear regression.
XIV week	Elements of statistics. Sample. Parameter estimation. Examples. <i>Home exercise</i> .
XV week	Statistical tests.
XVI week	Final exam
Final week	Administrative procedures.
XVIII-XXI week	Additional lessons, correction of the final exam and administrative procedures.
STUDENT WORKLOAD	
<p style="text-align: center;"><u>per week</u></p> <p>Working hours: 6.5 credits x 40/30 = 8 hours and 40 min.</p> <p>Working hours structure:</p> <ul style="list-style-type: none"> 3 hours for teaching 2 hour for exercises 3 hours and 40 minutes for individual work, including consultations. 	<p style="text-align: center;"><u>per semester</u></p> <p>Teaching and the final exam: (8.66 hours) x 16 = 138 hours and 40 minutes.</p> <p>Necessary preparation (before semester): 2 x (8.66 hours) = 17 hours and 20 minutes.</p> <p>Total work hours for the course: 6.5 x 30 hours = 195 hours</p> <p>Additional hours for preparing correction of the final exam, including the exam taking: up to 39 hours.</p> <p>Work hours structure:</p> <p>138 hours and 40 minutes (lectures) + 17 hours and 20 minutes (preparation) + 39 hours (additional work)</p>
Lessons attendance is mandatory for students, as well as doing home exercises, both tests and the final exam.	
Literature: M. Jaćimović: Kompleksna analiza, Handouts, 1999. S. Stamatović: Teorija vjerovatnoće. Statistika. Podgorica, 1999. D.W. Jordan, P. Smith: Mathematical techniques – an introduction for the engineering, physical and mathematical sciences, Oxford university press, 1997.	
The forms of knowledge testing and grading:	
<ul style="list-style-type: none"> - Home exercises carry 5x2 points. - Each test carries 30 points (60 points total). - Final exam carries 30 points. <p>Student gets the passing grade by collecting 51 points at least.</p>	
Special remarks for the course: If needed, the course can be also taught in a foreign language.	
Teacher(s) who provided the information: Ph.D. Milojica Jaćimović	
Remark: The teacher provides an additional information regarding this course.	