**DESCRIPTION OF A STUDY COURSE – SYLLABUS**

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| **Title of a course** | **Mathematics I** | | | | |
| **Study programme** | **Professional undergraduate study Occupational Safety** | | | | |
| **Status of a course** | Obligatory | | | | |
| **Year of study** | 1. | **Semester** | W | **ECTS credits** | 5 |
| **Teaching plan**  **(L + E + S+ Pr)** | 2+0+3+0 | | | | |
| **Goals of a course** | | | | | |
| Introduce students to the basic concepts of linear algebra and the function of a single variable. Prepare students for their practical application. | | | | | |
| **Conditions for enrolling course** | | | | | |
| No conditions | | | | | |
| **Expected learning outcomes on a level of a course** | | | | | |
| 1. Objasniti osnovne pojmove i pravila iz linearne algebre te ih primijeniti na rješavanje zadataka sa sustavima linearnih jednadžbi, matricama i determinantama. 2. Interpretirati osnovne pojmove i riješiti zadatke iz vektorskog računa. 3. Skicirati grafove elementarnih funkcija na temelju poznavanja njihovih svojstava. 4. Primijeniti osnove matematičke analize na funkciju jedne varijable. 5. Explain concepts from the basics of linear algebra. 6. Solve problems from the basics of linear algebra. 7. Explain concepts from the basics of mathematical analysis for single variable functions. 8. Apply the basics of mathematical analysis to a single variable function. 9. Explain concepts from the basics of infinitesimal calculus.   Solve problems from infinitesimal calculus. | | | | | |
| **Content of a course** | | | | | |
| Sustavi linearnih jednadžbi. Definiranje sustava m linearnih jednadžbi s n nepoznanica. Rješavanje sustava linearnih jednadžbi (Gaussova metoda eliminacije, Cramerovo pravilo, matrična jednadžba). Matrice. Determinante. Basic symbols of mathematical logic. Sets, operations with sets. Concept, way of setting functions and some of their features. Concept of function domain. Function composition. Inverse function. Classification of functions. Elementary functions. Graphical representation and characteristics of some elementary functions. Definition of vector Addition and subtraction of vectors. Multiplying of vectors by a scalar. Linear combination of vectors. Dependence and independence. Basis and dimension of vector space. Vectors in rectangular co-ordinate system. Concept of series. Arithmetic and geometric series. Finite and infinite series. Series limiting value. Convergence and divergence. Limiting value and continuity of a function. | | | | | |
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