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| Study program: Civil Engineering | | | |
| Course: Soil Mechanics and Foundation | | | |
| Professor/assistant: PhD Zoran Bonić / Milan Protić | | | |
| Status of course: compulsory | | | |
| ECTS credits: 6 | | | |
| Pre-requisites: none | | | |
| Aims of the course: | | | |
| <ul style="list-style-type: none"> - getting students acquainted with the spread of the soil tension and the bearing capacity of the soil without causing bad deformations; - forming the professional opinion of the soil on which the foundation of a constr. facility is being built; - getting students acquainted with projecting retaining walls; - getting students acquainted with the design of shallow foundations; - introducing them to the design of protection sides of the foundation pit; - getting them acquainted with deep foundation design. | | | |
| Learning outcomes: | | | |
| After successfully finishing the course, a student is capable of: | | | |
| <ul style="list-style-type: none"> - determining the limit state and permissible load of soil; - calculating the sagging of the ground below the foundation; - determining the stability of the supporting wall; - designing shallow foundations; - designing protection sides of the foundation pit; - designing deep foundations. | | | |
| Syllabus: | | | |
| <u>Theoretical part</u> | | | |
| Soil classification. Exploration works in the soil. Getting to know the physical and mechanical properties of soil. Granulometric composition of soil. Soil structure. Porosity and porosity coefficient. Compactness of soil, water content in soil, plasticity and consistency, soil waterproofing, soil resistance to shearing, deformability and compressibility. Geostatic tensions in soil, pressures from additional load. Subsidence of the ground. Load capacity of soil under the shallow foundations and methods for determination. Stability of the retaining wall. Determining the depth of funding. Massive shallow foundations, slab-on-grade foundation, foundations under walls and foundation carriers. Making and securing the sides of the foundation pit. Designing and calculating deep foundations. Pile foundations: types of piles, technology of production, pile load, calculation of foundation with piles. Deep massive foundations: monopile foundations. | | | |
| <u>Practical part</u> | | | |
| It consists of auditory exercises that are carried out in the fields specified in lectures. | | | |
| Literature: | | | |
| <ol style="list-style-type: none"> 1. Prolović, V., <i>Fundiranje I</i>, Građevinsko-arhitektonski fakultet u Nišu, 2003. 2. Prolović, V., Samardaković M., Bonić Z., Davidović N., <i>Osn. Meh. tla za sp. Arh.</i>, GAF u Nišu, 2008. 3. Todorović, J., <i>Fundiranje</i>, VGTŠ Beograd, 2011. 4. Maksimović, M., <i>Mehanika tla</i>, AGM knjiga, 2014. 5. Maksimović, M., Santrač P., <i>Zbirka zadataka iz osnova mehanike tla</i>, AGM knjiga, 2010. 6. Latov, S., <i>Mehanika tla</i>, VGGŠ. Beograd, 2006. | | | |
| Number of active classes | | | Other forms of teaching: |
| Lectures: 3 | Practical classes: 2 | Laboratory classes: 0 | |
| Teaching methods: | | | |
| Interactive classes incl. solving practical examples. Practical exercises with an active approach to solving practical problems from technical practice. | | | |
| Grading system (maximum 100 points), grading scale from 5 to 10: below 51 points grade 5, grade 6 from 51-60 points, grade 7 from 61-70 points, grade 8 from 71-80 points, grade 9 from 81-90 points, grade 10 from 91-100 points. | | | |
| Pre-commitments | points | Final exam | points |
| activity during lectures and practice | 5 + 5 | written exam | - |
| colloquium(s) | 20 + 20 | oral exam | 30 |
| seminar paper(s) | 20 | | |
| Sum | 70 | Sum | 30 |