

<b>Study program:</b>	Civil Engineering
<b>Level of study:</b>	Undergraduate academic studies
<b>Course title:</b>	<b>Fundamentals of foundation structures</b>
<b>Teacher:</b>	<b>PETAR SANTRAC</b>
<b>Course Status:</b>	Obligatory
<b>Credits (ECTS):</b>	6
<b>Prerequisite:</b>	Soil Mechanics, Basic of Concrete Structures

**Course objective(s):**

The aim of the course is to familiarize students with the design and construction of excavations, protection of deep foundation pits, groundwater lowering, design of retaining walls, shallow and deep foundations, repair and underpinning of the foundation, the use of computers in the building construction.

**Course outcome(s):**

The realization of the planned objectives.

**Course Content:**

1 <sup>st</sup> week	Introduction, literature, legislation and basics for foundation design.
2 <sup>nd</sup> week	Types of foundation; Analysis of the foundation loads; Machinery in foundation.
3 <sup>rd</sup> week	Foundation pit; The protection of foundation pits.
4 <sup>th</sup> week	Protection of foundation pits with sheet piling walls and diaphragm walls
5 <sup>th</sup> week	Protection of foundation pits with cofferdams.
6 <sup>th</sup> week	Retaining walls.
7 <sup>th</sup> week	Calculation and design of reinforced concrete foundation.
8 <sup>th</sup> week	Calculation and design of strip and spread reinforced concrete foundation.
9 <sup>th</sup> week	Calculation and design of strip and spread reinforced concrete foundation.
10 <sup>th</sup> week	Calculation and design of raft and mat reinforced concrete foundation.
11 <sup>th</sup> week	Deep foundations on wells, Buoyancy rafts (hollow box foundations) and caissons.
12 <sup>th</sup> week	Deep foundations on piles; Type of piles (by materials, by bearing type, by building technology).
13 <sup>th</sup> week	Calculation and design of foundations on piles and diaphragms walls.
14 <sup>th</sup> week	Strengthening the foundation and foundation repairs.
15 <sup>th</sup> week	Lowering of groundwater in the foundation pit.

**Literature:**

1. B. Ilić: Foundation I, "Faculty of Civil Engineering Subotica", Subotica, 1998.
2. S. Stevanović: Foundation I, "Naučna knjiga", Belgrade, 1989.
3. E. Nonweiler: Soil mechanics and foundation construction, "Školska knjiga", Zagreb, 1990.
4. Group of authors: Complicate foundation, "Naučna knjiga", Belgrade, 1980.
5. K. Sechy: Errors in building construction, "Građevinska knjiga", Belgrade, 1975.

**Number of hours:**

Lectures: 3	Exercises: 3	Other forms of teaching: 0	Individual research work: 0	Other classes: 0
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**Teaching methods:** Lectures, exercises, seminars, consultations

**Evaluation of knowledge (maximum 100 points)**

Pre-exam activities	points	Final exam	points
Activity during the lectures	5	Written exam	25
Activity during the exercises	0	Oral exam	45
Seminar papers	25	-	-
Colloquias	25		