# COURSE SYLLABUS AND COURSE REQUIREMENTS
# 2022/2023. I. SEMESTER

| | |
|---|---|
| *Course title* | *Underground Structures* |
| *Course Code* | *MSB384ANEP* |
| *Hours/Week: le/pr/lab* | *2/1/0 (2., 4., 6., 8., 10., 12., 14. week 14:00-19:15) C019* |
| *Credits* | *3* |
| *Degree Programme* | *Structural Engineering BSc./ obligatory* |
| *Study Mode* | *full time* |
| *Requirements* | *semester grade with signature* |
| *Teaching Period* | *Civil Engineering BSc 7. s. (fall)* |
| *Prerequisites* | *-* |
| *Department(s)* | *Department of Civil Engineering* |
| *Course Director* | |
| *Teaching Staff* | *Dr. Vendel JÓZSA, assistant professor* |
| *Hours/Week: le/pr/lab* | *Dr. Vendel JÓZSA tel: 30-395-**1807** jozsavendel@gmail.com* |

## COURSE DESCRIPTION

*This course is aimed to provide basic and advanced knowledge of underground space and underground construction technologies, including planning, construction methods, safety, and environmental considerations.*

*This course is designed to teach students geotechnical issues related to tunnelling and underground construction, particularly in urban areas. The fundamentals of tunnel design and the most common methodologies for tunnel construction are presented with the aid of documented case histories. Teaching students different methods of soil improvement, Site Dewatering, and supported deep excavation.*

## SYLLABUS

### 1. GOALS AND OBJECTIVES

*This course is aimed to provide basic and advanced knowledge of underground space and underground construction technologies, including planning, construction methods, safety, and environmental considerations.Students will gain from this course:*

*Students will gain from this course:*
*- knowledge of soil exploration and bearing capacity of soil,*
*- Understanding and Practical knowledge of foundation design.*
*- Knowledge of Ground improvement and supported deep excavation*

### 2. COURSE CONTENT

*Neptun: Instruction/Subjects/Subject Details/Syllabus/Subject content*

| | **TOPICS** |
|---|---|
| **LECTURE** | *Week 2 Course description. Orientation. Introduction in Tunnelling and Underground Construction Technology*<br><br>*Week 4 Geotechnical investigations*<br><br>*Week 6 Planning of Underground Construction Technology*<br><br>*Week 8 Midterm Homework. 1st presentation, Ground Movements, soil reinforcement and Supported deep foundation*<br><br>*Week 10 Classification of deep foundations. Design of deep foundation.*<br><br>*Week 12 Final exam*<br><br>*Week 14 Retaining structures. Second exam (only if required).* |
| **PRACTICE** | *Calculation examples related to the lectures* |

## 3. ASSESSMENT AND EVALUATION

**ATTENDANCE**

*In accordance with the Code of Studies and Examinations of the University of Pécs, Article 45 (2) and Annex 9. (Article 3) a student may be refused a grade or qualification in the given full-time course if the number of class absences exceeds 30% of the contact hours stipulated in the course description.*

***Method for monitoring attendance***

attendance sheet

***Course resulting in mid-term grade*** *(PTE TVSz 40§(3))*

***Mid-term assessments, performance evaluation and their ratio in the final grade*** *(The samples in the table to be deleted.)*

| Type | Assessment | Ratio in the final grade |
|---|---|---|
| *exam* | *50 pont* | *50 %* |
| *Home work* | *50 pont* | *50 %* |
| *full:* | *100 pont* | *100 %* |

***Opportunity and procedure for re-takes*** (PTE TVSz 47§(4))

*The specific regulations for improving grades and resitting tests must be read and applied according to the general Code of Studies and Examinations. E.g.: all tests and assessment tasks can be repeated/improved at least once every semester, and the tests and home assignments can be repeated/improved at least once in the first two weeks of the examination period.*

***Grade calculation as a percentage***

| Course grade | Performance in % |
|---|---|
| excellent (5) | 85 % … |
| good (4) | 70 % ... 85 % |
| satisfactory (3) | 55 % ... 70 % |
| pass (2) | 40 % ... 55 % |
| fail (1) | below 40 % |

The lower limit given at each grade belongs to that grade.

***Re-takes for the end-of-semester signature*** (PTE TVSz 50§(2))

*The specific regulations for grade betterment and re-take must be read and applied according to the general Code of Studies and Examinations. E.g.: all the tests and the records to be submitted can be repeated/improved each at least once every semester, and the tests and home assignments can be repeated/improved at least once in the first two weeks of the examination period.*

***Type of examination****: written*

***The exam is successful if the result is minimum 40 %.***

## 4. SPECIFIED LITERATURE

*In order of relevance. (In Neptun ES: Instruction/Subject/Subject details/Syllabus/Literature)*

**RECOMMENDED LITERATURE AND AVAILABILITY**

Bond, A. and Harris A.: Decoding Eurocode 7, London: Taylor & Francis 2008.

Farkas, J., Józsa, V., Szendefy J. (2014): Foundation Engineering, elektronikus angol BSc egyetemi jegyzet, BME, Geotechnikai Tanszék p. 97.

Presentations