

Topics for Graduation Projects CE491 – CE492

2022-2023 SPRING TERM

#	Topic	Co-Advisers	Min. # of students required to complete the project	Max. # of project groups	Mark your selection from 1 to 3*
1	Development of a Software for Disaster Resilience Structural Products-II	Dr. Bülent Akbaş, Dr. Burak Aydoğan, Dr. Ahmet A. Dindar, Dr. O. Şeker, Dr. Selçuk TOPRAK, Dr. Ülgen Mert Tuğsal	2	2	
	This project is intended to develop a software for the design of structural / non-structural elements/components for disaster (earthquakes, tsunamis, landslide, hurricanes, flood, etc.) resilient structures.				
2	Feasibility Study of Public-Private Partnership (PPP) Projects - II	Dr. Bülent Akbaş, Dr. Burak Aydoğan, Dr. Sevilay Çakır, Dr. Ahmet A. Dindar, Dr. O. Şeker, Dr. Selçuk TOPRAK, Dr. Ülgen Mert Tuğsal	3	2	
	This project aims at developing a given site considering the functions determined and designing the structures within the site accordingly. This is planned to be a two-term project. In the first term, a strength-based design is expected to be carried out for all the structures in the site. In the second term (Graduation Project II), deformation-based design is to be performed for all the structures.				

3	Using biotechnical and soil bioengineering techniques for slope rehabilitation	Dr. A. Tolga Özer, Dr. Onur Akay	2	1	
This project aims to provide a basis for understanding the components of biotechnical rehabilitation and designing slope remediations using biotechnical and soil bioengineering techniques. The project is planned to be completed in two semesters as CE491 and CE492. In the first semester (CE491) comprehensive literature will be studied for biotechnical and soil bioengineering techniques. In the second term (CE492) a design study will be performed.					
4	Design Work for a Marina-II	Asst. Prof. Ceren Özer Sözdinler, Assoc. Prof. Burak Aydoğan, Asst. Prof. Hadi Khanbabazadeh, Assoc. Prof. Sevilay Çakır	4	2	
This Project aims to make the final account of a pre-designed marina at a selected coast of Türkiye. The Project team is expected to prepare the final layout and dimensions of marina including a detailed analysis of soil conditions. The project team is also asked to calculate the construction costs, generate a building information model (BIM), and analyze the marina in terms of construction project management practices (i.e, cost, time, quality).					
5	Assessment of Masonry Structures exposed to Train/Tram Vibrations	Dr. Can Zülfikar, Dr. Ferit Çakır, Dr. Savaş Karabulut	3	2	
This project aims to assess the effect of environmental vibrations such as train and tram vibrations in the surrounding masonry structures. The project will have two semesters work. In the first semester, the selected masonry structures located nearby to train/tram lines will be examined and tested with accelerometer instruments. The dynamic characteristics of the masonry structures will be extracted through the testing records. The selected masonry structures will be modeled. The test and model results will be compared. In the second semester, the masonry structures models will be analyzed under seismic motion.					
6	Design and Rehabilitation of Landfills	Prof. Dr. Selçuk TOPRAK, Prof. Dr. Banu Çetin, Assoc. Prof. Dr. Çiğdem BALCIK	1	2	
This project aims to provide the principles and methodologies for the design and assessment of landfills. In addition, assessment of existing landfills and open dumps regarding multiple geotechnical and environmental issues including stability problems (e.g., slope stability) will be performed.					

7	Urban Earthquake Risk Assessment	Dr.Can Zülfikar, Dr. Ülgen M. Tuğsal, Dr. Ahu M. Kömeç, Dr. Savaş Karabulut	5	2	
<p>This project aims to form a building inventory for an urban region for further seismic hazard and risk assessment. The project has two semesters work. In the 1st semester, the students will work at the site for the site inspection of the buildings in an already determined residential area. The building typologies will be extracted from the inventory and representative structural models will be obtained. The seismic hazard assessment for the region and seismic risk assessment for the typical buildings will be applied on an urban scale. In the second semester, the selected building types will be analyzed under seismic motion based on the Turkish Building Earthquake Code.</p>					
8	Use of Waste Materials in Concrete	Dr. T. Altuğ Söylev, Dr. Sevilay Demirkesen Çakır	3	1	
<p>This project aims to investigate waste materials with potential for use in concrete as binder or aggregate. These are mainly industrial by-products, which have been commonly used in concrete or which are relatively new and original materials. The first step of the study consists of a general literature survey on the use of waste materials in concrete, their characteristics, and their effects on the properties of concrete. The students should be able to determine useful waste materials from different sources or industries. In the second step of the study, the students will prepare a list of potential local producers. The candidate waste materials will be listed by clearly explaining their potential for use in concrete. The collection of two waste materials, both binder and aggregate, will be the third step in the study. After collecting the materials, a more detailed and specific literature survey will be prepared to better understand their properties. Analysis of their environmental and economic benefits will be the fourth step of the study.</p>					