UNIVERSITY OF THESSALY
School of Engineering - Department of Civil Engineering

Series of Scientific Lectures
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Underground structures against seismic ground excitation: From seismic behavior and design to seismic vulnerability and resilience assessment

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Wednesday **6/4/2022**, Time: **11:00**
Hybrid Seminar: **Room A2**, MS Teams
Live Streaming: DIAVLOS, YouTube

Abstract:

Underground structure (for instance, tunnels, subway stations, embedded pipelines, etc.) constitute crucial elements of road and rail transportation networks, as well as of energy transmission infrastructure, and are constructed at an increasing rate in seismic prone areas. Considering the vital role of these structures, as well as the significant losses associated with potential seismically induced damage, their adequate seismic design, as well as seismic vulnerability and resilience assessment, are of foremost importance for stakeholders, operators, and governmental bodies. Within this lecture, topics related to the behavior and design of underground structures subjected to ground seismic shaking will be presented, focusing on cases of circular or rectangular tunnels embedded in soft soils. In addition, recent developments in the vulnerability and resilience assessment of underground structures (e.g., tunnels and embedded natural gas pipelines) subjected to ground seismic shaking, will be presented. The above topics will be discussed through the presentation of representative results of advanced numerical analyses and experiments (i.e., tests on model tunnels in geotechnical centrifuges), conducted in the frame of relevant recent research projects.