

Graduate Seminar



Dan M. Frangopol, PhD

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September 23, 2024 (4:00 pm - 5:30 pm), Kupfrian Hall - Room 205

[Zoom Link: Click Here](#) Meeting ID: 994 3917 6432 Passcode: 058807

Life-Cycle Reliability, Risk, Resilience, and Sustainability of Civil Infrastructure under Multi-hazards

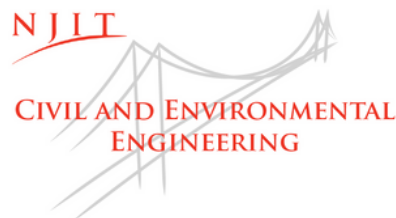
Abstract

Decisions regarding design, assessment and maintenance of structures and infrastructure systems should be supported by an integrated reliability-, risk-, resilience- and sustainability based life-cycle multi-objective optimization framework by considering, among other factors, the likelihood of successful performance and the total expected cost accrued over their entire life. The primary objective of this lecture is to present a life-cycle multi-objective optimization framework for reliability-, risk-, resilience- and sustainability-informed decision making for structures and infrastructure systems under lifetime hazards including corrosion, earthquake and climate change. Several important performance indicators such as reliability, risk, resilience and sustainability necessary to be implemented in the design, assessment and maintenance of structures and infrastructure systems under single and multiple hazards are introduced. Bridges and bridge transportation networks are used to illustrate the application of the proposed approach.

About the Speaker

***Dan M. Frangopol** is the inaugural holder of the Fazlur R. Khan Endowed Chair of Structural Engineering and Architecture at Lehigh University. He is widely recognized as a pioneer in the field of life-cycle engineering of civil and marine structures. Dr. Frangopol is the Founding President of the International Association for Bridge Maintenance and Safety (IABMAS) and the International Association for Life-Cycle Civil Engineering (IALCCE). He is the Founder and Editor-in-Chief of Structure and Infrastructure Engineering. Dr. Frangopol is a distinguished member of ASCE. He holds 5 honorary doctorates and 14 honorary professorships from major universities. In 2023, ASCE established the Dan M. Frangopol Medal for Life-Cycle Engineering of Civil Structures. He has achieved membership in eight academies including the US National Academy of Construction, the Canadian, Japan and Mexican Academies of Engineering, the Academia Europaea (London), the Royal Academy of Belgium, the Romanian Academy, and the Academy of Technical Sciences of Romania.*

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