



Institute of Transportation Engineers  
at Florida Atlantic University

## The ITE Student Chapter at FAU Presents

### Port Planning Under Deep Uncertainty

Lecture presentation by Dr. Rodrigo Mesa-Arango, Ph.D.  
*Florida Institute of Technology*

Thursday, November 14, 2019 - 12:00 PM to 1:00 PM  
Engineering East (EE-96), Room 405  
Florida Atlantic University, Boca Raton Campus  
*Lunch will be provided*



### Port Planning Under Deep Uncertainty

This presentation overviews the motivation, challenges, and framework of a maritime port planning model for the Latin American and the Caribbean (LAC) region. As the global maritime system changes, ports at different geographies need to develop adaptations based on general and context-specific challenges. Transportation planning and modeling is crucial to support adaptation decisions, which are primarily related to (1) international trade policies (i.e., tariff changes, trade wars, cooperation agreements, economic clusters, among others), (2) new technologies, (e.g., industry 4.0 revolution, smart weather prediction, environmental sensing, barge tracking, renewable energy, fleet electrification, truck tracking, advanced modeling and simulation, among others), and (3) changes in the maritime logistics industry (increments in vessel capacity, evolution of hub-and-spoke networks, vertical/horizontal alliances, among others). This presentation expands on these issues for port planning and overviews the development of a maritime port planning framework to forecast port demand and costs supported by an underlying computable general equilibrium model for global trade, context-specific secondary data, and stakeholders'/experts' opinions. The scope of the project encompasses the Colombian Caribbean region, and selected scenarios of international trade, new technologies, and emerging maritime industry trends. The final model will be able to support national investment guidance for maritime ports located in the LAC region. This is an ongoing project co-developed and sponsored by the Inter-American Development Bank.

### About the Presenter



Dr. Mesa-Arango heads the Transportation Engineering branch for the Department of Mechanical and Civil Engineering at the Florida Institute of Technology. His core expertise is in the area of freight logistics and transportation network modeling. Dr. Mesa-Arango received his Ph.D. from Purdue University, has multiple publications in top transportation research journals, presentations in recognized conferences, and awards. He is the reviewer of multiple transportation and operations research journals and conferences, the research coordinator of the TRB Standing Committee on Trucking Industry Research, an active member and newsletter coordinator of the TRB Standard Committee on Intermodal Freight Transport, and an active member of the Freight and Logistics Committee of ASCE's Planning and Development Council. His research experience and interests include mathematical programming, simulations, networks, algorithm design, behavioral modeling, traffic assignment, disaster management, transportation economics, transportation planning, and related.

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