Vehicle Routing Problems: Applications in Service and Entertainment Environments

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4:00 - 5:00 pm
Refreshments available at 3:30 pm
Location:
Transportation Center, Chambers Hall
Lower Level, 600 Foster St., Evanston

Abstract: Two problems associated with VRP will be discussed. The first relates to solving the Blood-Mobile Routing Problem. On a daily basis, blood centers select a set of locations among a group of potential locations to collect blood so as to minimize the delivery cost and to avoid shortfalls. Integer programming is used to model this problem; column generation and branch & bound methodologies are applied for its solution. Numerical experiments and computational results will be presented. The second problem relates to the dynamic transportation system at Walt Disney World (WDW) Park and Resorts. Consistently ranked the best vacation destination experience for families, WDW provides exceptional accommodations, entertainment, and activities supplemented with free transportation. The Industrial Engineering/Operations Research team supported the analysis of integrating standard transit technology (data collection & communications) with real time optimization to create a first of its kind dispatch application in passenger transportation. An overview of the simulation models developed will be given, in addition lessons learned from designing and studying such a dynamic environment will be shared.

Bio: Dr. Grisselle Centeno, is an Associate Professor in the Industrial and Management Systems Engineering Department and an Associate Faculty member of the Center for Urban Transportation Research at the University of South Florida, Tampa. Her research has examined optimization-based approaches for the planning and control of operations in transportation and manufacturing industries, as well healthcare environments. She possesses experience in working with large-scale mathematical programming models, developing heuristic solution methods, and building decision support systems. Dr. Centeno’s research work has been sponsored by various agencies including NSF, ONR and FDOT and she has published in the Journal of Annals of Operations Research, Computers and Operations Research, IEEE Transactions on Semiconductor Manufacturing and Transportation Research Records among others.

Dr. Centeno is also highly involved in conducting research in the area of engineering education and promoting the growth of a diverse engineering workforce. In 2013, she was the recipient of the Women in Leadership and Philanthropy award which recognizes distinguished faculty members in the USF System whose research and creative efforts focus on women, women's issues, and women's initiatives.

Currently, she serves as a senior Industrial Engineering consultant to Walt Disney World Resort in Orlando, Florida, where she provides support to the Operations Research/ Advanced Analytics team on projects related to optimization and process improvement across the various lines of business within the Corporation.