The Department of Civil and Environmental Engineering at the University of Houston presents...

CIVE 6111 Graduate Seminar

Structural Monitoring and Data Analytics for Deepwater Drilling Risers

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2:45pm-3:45pm
Classroom Business Building (CBB) – Room 118

Abstract
In-situ structural monitoring has been used by a number of oil and gas operators to support deepwater drilling operations. Drilling risers extending from offshore platform to seabed are exposed to fatigue loading as a result of wave and current effects. Riser motion measurements recorded in the field help understand the level of accuracy present in the up-front fatigue analysis and confirm the integrity of the drilling riser equipment. However, the field data analysis requires detailed understanding of drilling riser modeling, loading conditions, operations, motion sensor characteristics and signal processing. Careful selection of the analysis approach determines the monitoring system configuration and validity of the measured results. In this presentation, fundamentally different riser fatigue methods utilizing measured motion data will be described and compared with each other. The advantages and disadvantages of each approach will be evaluated, and recommendations will be provided for when each method should be considered.

Bio
Dr. Bulent Mercan received his BS in Civil Engineering from Istanbul Technical University in 2001. He earned his MS degree from the University of Houston and PhD from the University of Minnesota. His doctoral dissertation dealt with the analysis and design of precast, prestressed concrete spandrel beams. After earning his PhD, he joined the architecture and engineering firm of Skidmore, Owings and Merrill LLP, in Chicago and worked as a structural engineer on supertall building projects. In 2012, Dr. Mercan returned to Houston and joined 2H Offshore, delivering subsea riser design and engineering services for oil and gas industry. He is currently a principal engineer at 2H and manages structural health monitoring projects. Also, Dr. Mercan has been teaching various civil engineering courses as a part time lecturer in the University of Houston. Courses he taught include Structural Analysis, Matrix Analysis of Structures, and Finite Element Methods.