

Special Course Offering Spring 2016

Advanced Structural Dynamics

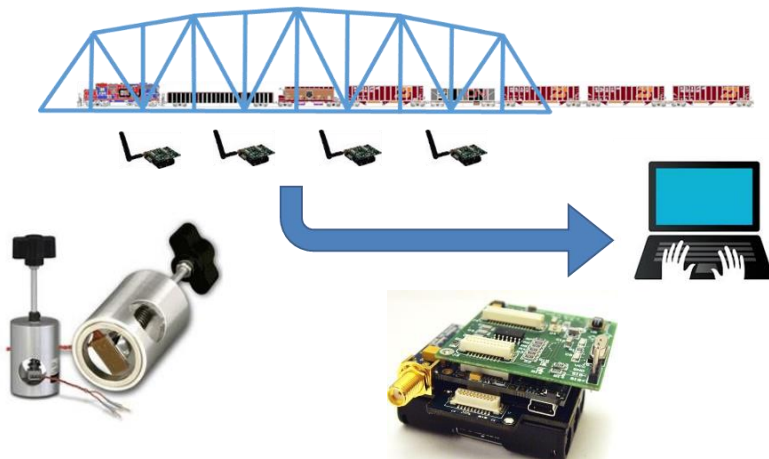


Time: Mondays and Wednesdays 17:30–18:45
Location: CENT-1030
Course/CRN: CE598 004 (55520)

Tentative Topics

- A Review of Structural Dynamics and Modern System Theory
- Data Acquisition and Analysis
- Digital Signal Processing
- Experimental Modal Analysis Theory and Implementation
- Random Vibration Concepts
- System Identification
- Health Monitoring and Damage Detection
- Pseudo-Dynamic Testing and Model-based Simulation
- Introduction to Smart Structures Technology

This course is designed to give graduate students an in-depth understanding of the fundamental dynamic behavior of structural systems, and allow them to apply this understanding to analysis, design, investigation, and assessment. Students will primarily study structural dynamics systems, data acquisition, and data processing. The students of this course will understand the principles and procedures for analyzing dynamic structural systems common in civil engineering, with an emphasis to buildings and bridges. A significant portion of the course will be devoted to the fundamentals of experimental structural dynamics, exposing students to state-of-the-art commercial testing equipment and software and providing practical laboratory experience. For many problems, such testing is essential to validate new structural concepts, as well as to understand structural responses and failures that are not readily explained by intuition, analytical models, or previous experience. Additionally, this course will provide the students with an introduction to random vibration, health monitoring and damage detection, and smart structures technology (e.g., passive, active, and semi-active control, smart sensors, etc.) Admission to the class for undergraduate students is by instructor permission only and is limited to high-performing students within the structures and materials focus area.



Faculty:

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For further information, contact fmoreu@unm.edu