

## **LECTURE #2**

### **Lecture #2: Modeling and Scaling**

Introduction to scaling reality for reduced scale testing:

- 1) Introduction to models
- 2) Similitude and dimensional analysis
- 3) PI terms and Buckingham Theorems
- 4) Scale modeling using PI terms .
- 5) Scale modeling in Dynamics of Structures - example
- 6) Artificial mass simulation for incomplete modeling -example
- 7) Modeling inelastic structures – examples
- 8) Examples of past tests
  - a. Steel structures
  - b. Micro concrete structures
  - c. Liquid storage tanks
- 9) Scaled models for shake table studies

Topics covered:

- (i) Dimensional Analysis
- (ii) Scaling and similitude relations
- (iii) Material modeling and scaling
- (iv) Incomplete similitude