Fundamentals of Engineering Exam Review

STRUCTURAL ANALYSIS AND STRUCTURAL DESIGN

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Goals for this Session

- **Primary**
  - PASS THE FE EXAM !!!

- **Secondary**
  - Review the FE Reference Handbook
  - Review the concepts and details of structural engineering problems
Structural Analysis
(10% in the afternoon session)

- Force analysis of determinant beams, trusses, and frames
- Deflection analysis of determinant beams, trusses and frames
- Stability analysis
- Column analysis
- Loads and load paths
- Elementary statically indeterminate structures
Structural Design
(10% in the afternoon session)

- Codes (ASCE, AISC, ACI, NDS, AISI)
- Steel design
  (beams, columns, tension members)
- Concrete design
  (beams, slabs, columns, walls, footings)
Structural Analysis

- Overview of FE Reference Manual
  - Influence lines for beams and trusses
  - Beam stiffness and moment carryover
  - Truss deflection by unit load method
  - Frame deflection by unit load method
  - Member fixed end moments
Structural Analysis

- Solution strategies
- Example problems
Structural Design

- Overview of FE Reference Manual
  - Live load reduction
  - Load combinations
  - Concrete design
    - Design moments, beams, columns
  - Steel design
    - Beams, columns, tension members, connections
Structural Design

- Solution strategies
- Example problems
Summary

- Review the FE Reference handbook
- Work additional sample problems
- Apply solution strategies

- PASS THE FE EXAM!!

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