Course Name:
Loading

Course Number:
20209

Credit:
1

Prerequisite:
Dynamics; Theory of Structural Analysis I

Course Description (Objectives):
The primary objective of this course is to learn how to compute the loads that are exerted on structures during their lifespan. The course is based on the Section 6 of the National Building Code of Iran.

Course Content (outline):
- Introduction
    - Load categories
    - Load-bearing elements
    - Load distribution
    - Tributary area
- Dead load
    - Floor load
    - Wall and partition loads
- Live load
    - Distributed and concentrated live load
    - Critical loading conditions
    - Live load reduction
    - Dynamic live loads
    - Crane loads (optional)
- Snow load
    - Basic snow load
    - Symmetric and asymmetric loading
- Wind load
    - Vertical velocity gradient
    - Vortex and gust
    - Basic wind velocity and pressure
    - Velocity variation and shape factors
    - Non-building structures
    - Overturning, slip, and lateral displacement provisions
- Earthquake load
    - An introduction to engineering seismology and earthquake engineering
    - Plan and vertical regularity
    - Equivalent static load method

    - Seismic-force resisting elements and systems
    - Effective seismic weight
    - Peak ground acceleration
    - Period, spectral response, importance, and strength reduction factor of buildings
    - Vertical distribution of seismic loads
    - Horizontal distribution of seismic loads considering torsion
    - Loading direction
    - Separation gap
    - Serviceability level earthquake
    - Overturning provisions
    - Vertical seismic load
- Load combination

References:

- Office of National Building Code, "Section 6 of the National Building Code: Loads on Exerted on the Building", 2014.
- Building and Housing Research Center, "Iranian Code of Practice for Seismic Resistant Design of Buildings", 4th Edition, Standard 2800, 2015.