



Course Name:

Loading

Course Number: 20-209	Credit: 1
Program: Undergraduate	Course Type: Technical elective
Prerequisite: Dynamics; Structural Analysis I	Corequisite: -

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.