

**Course Name:**

Principles of seismic design

**Course Number:**

20003

**Credit:**

3

**Course Content (outline):**

1. Effects of earthquake on structures and seismic damages in past events
2. General specifications in resistant design, the effect of effective parameters on damage including irregularities and architecture on the performance of structures
3. The general philosophy of resistant design of structures against earthquakes, ductility, energy absorption, mechanism, design concepts based on capacity and performance
4. Types of earthquake resistant systems
5. Design of steel frames subjected to earthquake by reviewing regulations
6. Design of concrete moment frames subjected to earthquake by reviewing regulations
7. Seismic design of steel concentrically braced frames
8. Seismic design of steel eccentrically braced frames
9. Seismic design of concrete shear walls
10. Seismic design of steel shear walls
11. Seismic design of masonry buildings
12. Special considerations of design and control of non-structural systems and components
13. Review of the national and international regulations

**References:**

- Naeim, Farzad, ed. The seismic design handbook. Springer, 1989.