Performance-based earthquake engineering

Summary

Content
Advanced topics in probabilistic seismic hazard analysis, structural behavior and simulation with emphasis on nonlinear modeling including collapse prediction, nonlinear modeling criteria, damage estimation, seismic risk assessment, vulnerability curves, earthquake-induced loss estimation and life-cycle analysis.

Keywords
Performance-based earthquake engineering
seismic risk assessment, life-cycle assessment, loss estimation

Learning Prerequisites
Required courses
seismic engineering, structural dynamics

Recommended courses
nonlinear analysis, structural design and behaviour of structures

Learning Outcomes
By the end of the course, the student must be able to:
• Conduct probabilistic seismic hazard analysis
• Conduct a seismic performance assessment of structures
• Conduct life-cycle assessment considering earthquake-induced losses

Resources
Bibliography

Ressources en bibliothèque
• Bozorgnia, Y., Bertero, V.V. (2004). Earthquake Engineering: From Engineering Seismology to Performance-Based Earthquake Engineering, CRC Press