

NORTHEASTERN UNIVERSITY
Department of Civil and Environmental Engineering

CIVG312 Earthquake Engineering

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Text: Class Notes

Topics

1. INTRODUCTION TO EARTHQUAKE ENGINEERING AND COURSE OBJECTIVE
2. PLATE TECTONICS, SEISMOLOGY, AND INSTRUMENTATION
3. EARTHQUAKE FAULTS AND MAGNITUDE SCALES
4. GROUND MOTION PARAMETERS
5. DYNAMIC RESPONSE ANALYSIS OF SINGLE-DEGREE-OF-FREEDOM SYSTEM AND RESPONSE SPECTRUM
6. GROUND MOTION ATTENUATION
7. INTRODUCTION TO SITE EFFECT
8. WAVE PROPAGATION AND DYNAMIC SOIL PROPERTIES
9. SITE RESPONSE ANALYSIS USING PROSHAKE
10. SEISMIC HAZARD AND RISK ANALYSIS
11. DESIGN GROUND MOTIONS AND SPECTRA
12. SEISMIC DESIGN OF BUILDINGS
13. SEISMIC ANALYSIS OF BRIDGES: OVERVIEW