Seismic Design of Urban Infrastructures

1. Introduction

Kazuhiko Kawashima Department of Civil Engineering Tokyo Institute of Technology



Historical Bridges









Cable Stayed Bridges



Rion Anti-Rion Bridge

Ashigara



Suspension Bridges





Bosporus Bridge

Damage of Subway Station during 1995 Kobe Earthquake





Settlement of Road Surface



Important difficulties which human beings are facing

- Global warming
- •Excessive population increase
- Natural disasters
 - ✓ Earthquake
 - ✓Tsunami
 - ✓Tornado, Hurricane & Typhoon
 - ✓Flooding

•Deterioration of environment

Seismic Design of Urban Infrastructures

- 1. Seismic damage in past earthquakes
- 2. Characterization of ground motions
- 3. Dynamic response analysis
- 4. Strength and ductility of structural members
- 5. Seismic behavior
- 6. Seismic design of bridges
- 7. Seismic design of underground structures

Seismic Design of Urban Infrastructures

1	4/15 (F)	9	6/4 (Sat)
2	4/22 (F)	10	6/10 (F)
3	4/28 (Thu)	11	6/17 (F)
4	5/6 (F)	12	6/24 (F)
5	5/11 (W)	13	7/1 (F)
6	5/20 (F)	14	6/8 (F)
7	5/27 (F)	15	6/9 (Sat)
8	6/3 (F)	Examinatio	6/16 (need
		n	confirmatio
			n)

Evaluation

Test (70%) + Report (30%)