Course Title

SEISMIC DESIGN OF STRUCTURES

COURSE NUMBER: SE-506

SEISMIC DESIGN OF STRUCTURES

MAIN COURSE

SEISMOLOGY &
SEISMIC DESIGN OF
RC STRCTURES

By

Dr. M. Burhan Sharif

DYNAMICS

BY

Dr. Irfan ul Hassan

SEISMIC DESIGN OF STRUCTURES

1. EARTHQUAKE MECHANISM: TECTONIC PLATES, FAULTING, AND SEISMICITY. CHARACTERISTICS OF STRONG GROUND MOTION: MAGNITUDE, INTENSITY, PEAK GROUND ACCELERATION, ATTENUATION RELATIONSHIPS. SEISMIC RISK: INTRODUCTION TO PROBABILISTIC RISK MAPPING, SEISMIC ZONATION.
2. ROLES OF STRENGTH STIFFNESS AND DUCTILITY ANALYSIS OF DUCTILITY DEMAND NONLINEAR ANALYSIS OF STRUCTURES TAKEN INTO ACCOUNT OF ELASTO-PLASTIC BEHAVIOR SIMPLIFIED DESIGN CODES BASED ON THE CONCEPT OF EQUIVALENT LATERAL STATIC FORCE.

SEISMIC DESIGN OF STRUCTURES

1. BASICS OF EARTHQUAKE AND THEIR EFFECTS ON BUILDINGS.
2. VERTICAL AND HORIZONTAL REQUIREMENTS FOR TALLER BUILDINGS.
3. CALCULATION OF BASE SHEAR USING INTERNATIONAL BUILDING CODE.
4. DETAILING REQUIREMENT FOR SESIMIC DESIGN OF RC STRUCTURES (special and intermediate moment resisting frames)
5. DESING OF SHEAR WALLS.

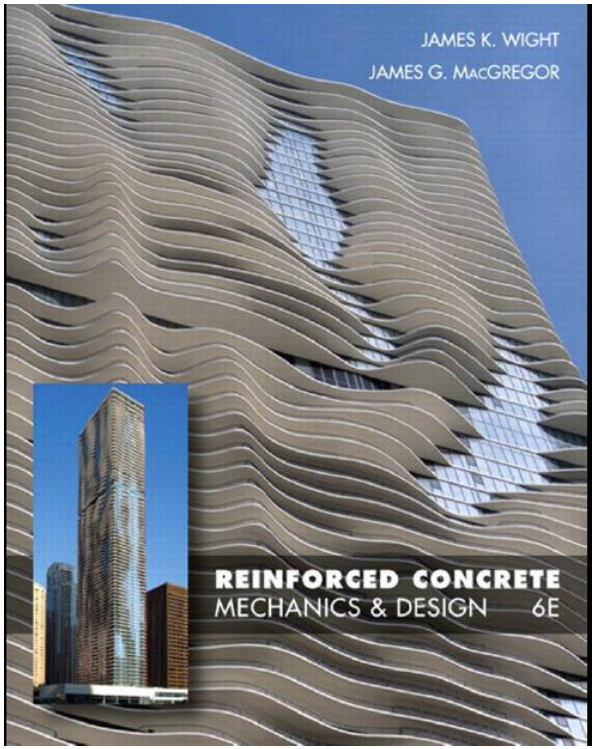
Marks Detail

Theory Paper = 100 Marks

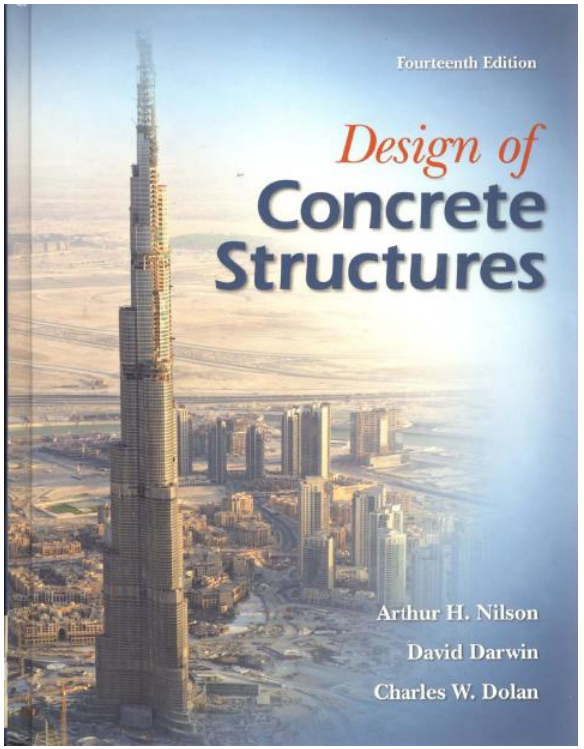
Sessional Marks = 100 Marks

Sessional marks will be based on attendance, quizes, assignments + Project etc.

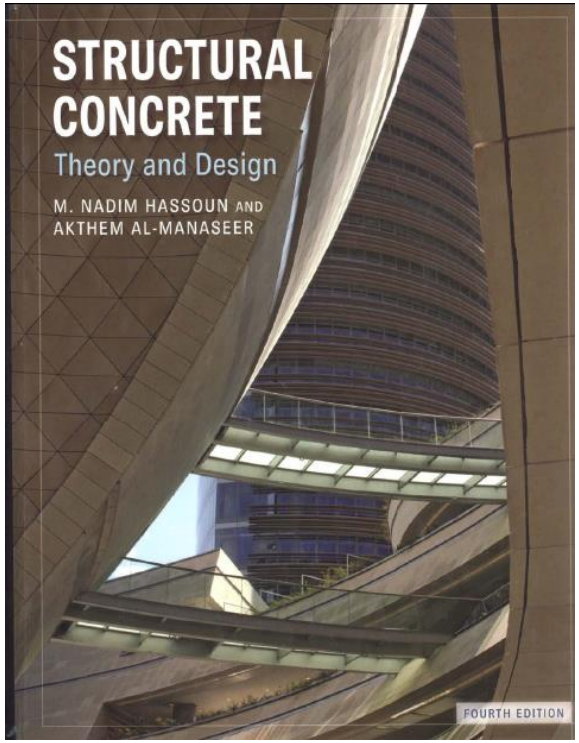
Books



James G MacGregor

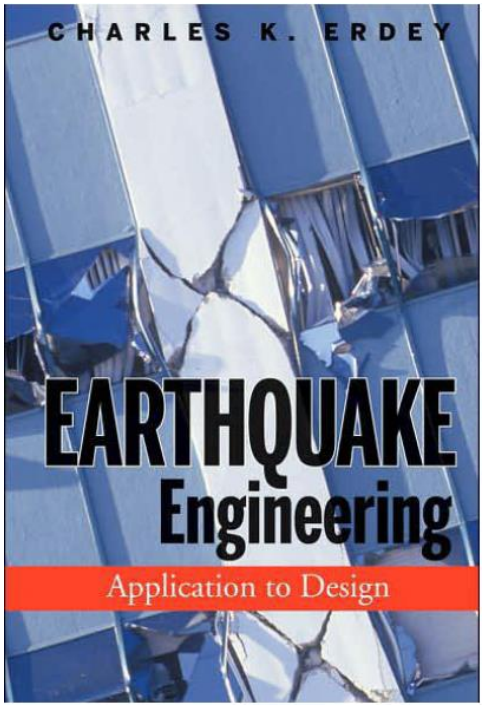


Arthur H Nilson

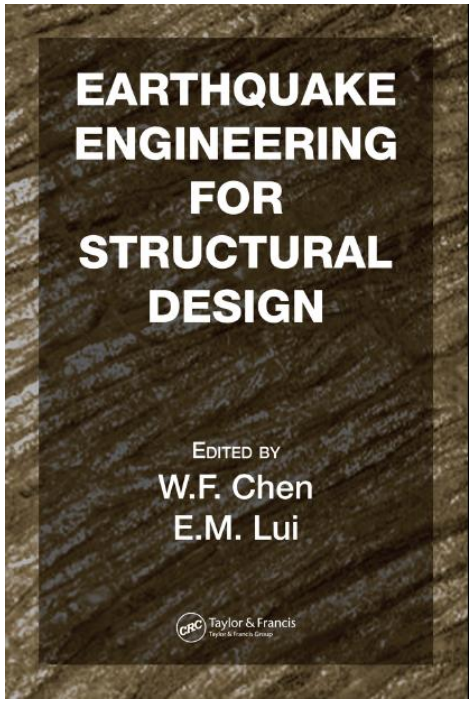


M. Nadim Hassoun

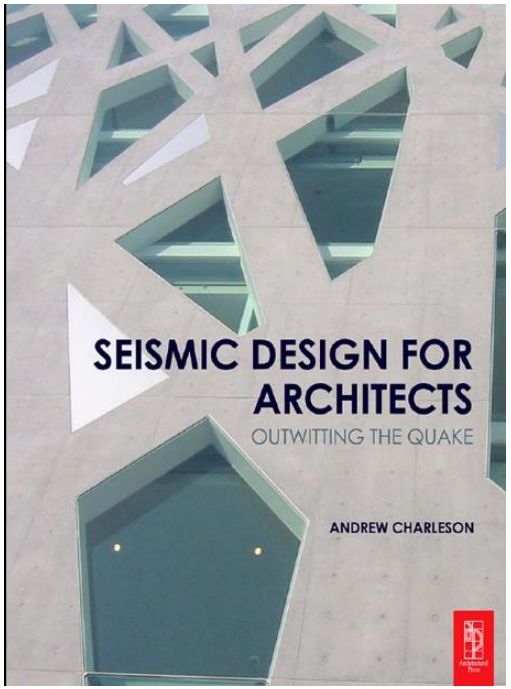
Books



Charles K. Erdy

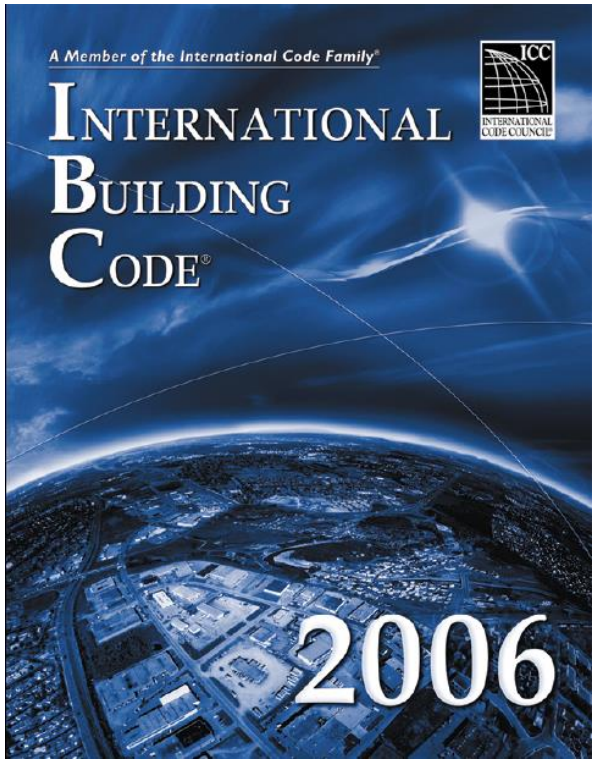


W. F. Chen & E.M. Lui

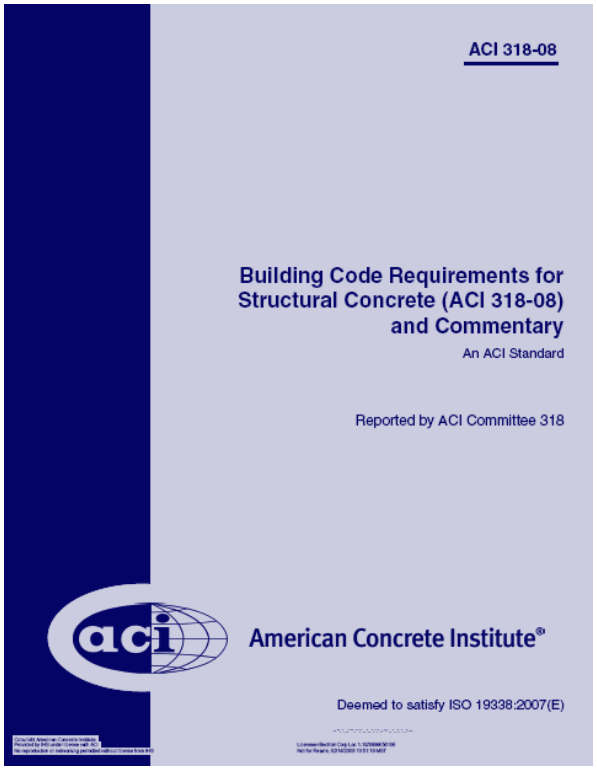


Andrew Charleson

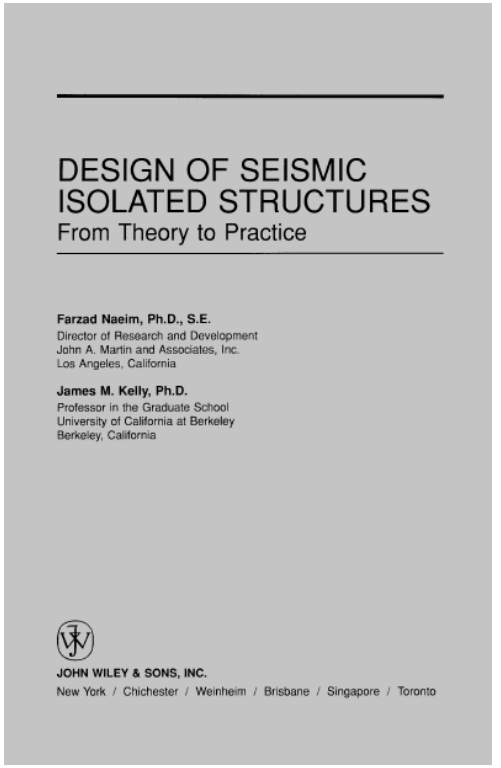
Books



IBC 2006



ACI-2008



Farzad Naeim & James M. Kelly

Codes

1. Uniform Building Code 1997
2. International Building Code (IBC) 2006
3. ACI Code 2008
4. Structural Seismic design manuals

Course Learing Outcome (CLO's)

Sr. No.	Objective	PLO
1	**The student will be able to know in depth about the earthquakes**	1
2	**The students will be able to know how the earthquake affects our structures.**	2
3	**The student will be able to analyze and design 3D multi story building complying with all the requirements of seismic design and will be 100% safe against specified earthquake forces**	3
4	**Different types of dynamic loads and their application on structures manually and through latest software's**	3

Program Learning out come (PLO)

PLO	Description	PLO	Description
1	**Engineering Knowledge**	7	**Environment and Sustainability**
2	**Problem Analysis**	8	**Ethics**
3	**Design / Development of solution**	9	**Individual and Team work**
4	**Investigation**	10	**Communication**
5	**Modern tool usage**	11	**Project Management**
6	**The Engineers and Society**	12	**Life long Learning**