COURSE CODE: CERCDES COURSE TITLE: Principles of Reinforced Concrete DEPARTMENT: Civil Engineering

Main Reference: ASEP (2015), National Structural Code of the Philippines, Vol. 1, 7th Edition (2nd Printing)

Other references:

- 1. McCormac, Jack C. and Brown, Russell H. (2014), Design of Reinforced Concrete, 9th Edition, John Wiley & Sons.
- 2. Nilson, Arthur (1997), Design of Concrete Structures, 12th Edition, McGraw-Hill Book Co.
- 3. MacGregor, James G. and Wight, James K. (2012), Reinforced Concrete: Mechanics and Design, 6th Edition, Pearson.
- 4. Estanero, Romeo A. (2008), Reinforced Concrete Principles, 4th Edition.
- 5. Wang, Chu-kia, Salmon, Charles G. and Pincheira, Jose A. (2007). Reinforced Concrete Design, 7th Edition, Wiley.
- 6. Nawy, Edward G. (2000), Reinforced Concrete: A Fundamental Approach, 4th Edition, Prentice Hall.
- 7. Hassoun, M. Nadim and Al-Manaseer, Akthem (2012), Structural Concrete: Theory and Design, Wiley.
- 8. Nawy, Edward G. (2009), Prestressed concrete; a fundamental approach, 5th Edition, Prentice Hall.
- 9. T.Y. Lin and Ned H. Burns (1982), Design of Prestressed Concrete Structures, John Wiley and Sons.
- 10. Arthur H. Nilson (1978), Design of Prestressed Concrete, John Wiley and Sons.

READING LIST:

Lecture notes on the following:

- Properties of Steel and Concrete
- General Mechanics of Flexure
- Elastic Bending of RC Beam
- Inelastic Bending of Singly Reinforced Beam
- Equivalent Rectangular Stress Block
- Design of Singly Reinforced Beam
- Doubly Reinforced Beam
- T-Beams
- RC Columns
- Axially Loaded Columns
- Eccentrically Loaded Columns
- Interaction Diagram
- Biaxial Bending
- Shear Strength of Concrete and Reinforcement
- Prestress Concrete Tendons and Analysis of Stress

- Analysis of Section of Prestressed ConcreteUltimate Strength Design of Prestressed Concrete
- Prestressing Losses

REQUISITE EQUIPMENT/MATERIALS FOR THE COURSE: None