Reinforced Concrete Design II

Syllabus

1- Prestressed concrete:

Basic concepts, Advantages of using prestressed concrete members, Prestressing systems (pretension, post tension), Prestressing materials, permissible concrete stresses, permissible steel stresses, Losses of prestress.

2-Design of RC bridges:

RC bridges systems, design codes, loading (AASHTO), live load (truck loading, military loading, special loading, side walk),dead load, impact effect, distribution of wheel load on concrete slabs, main reinforcement perpendicular to slab, main reinforcement parallel to slab, distribution of wheel loads to stringers, longitudinal beams and floor beams, slab bridge, edge beam, girder deck bridge, miscellaneous details.

3- Selected Topics:

(Tanks, Retaining structures, EQ Resisting structures, Deep beams,….).

References:-

Textbooks:

1-Design of Concrete Structures, A.H. Nilson et. al., 13th Ed., McGraw Hill, 2004.

2-ACI Committee 318M,2008, Building Code Requirements for Structural Concrete Institute, USA.

Suggested references:

1-Jack C. McCormac "Design of Reinforced Concrete", 9th ED. 2014

2-Nawy, E., "Reinforced Concrete ", 6th Edition, (2009).

3-Reinforced Concrete a Fundamental Approach, 4th ED., 2000, by Edward G. Nawy, Prentice- Hall. Inc. USA.

4-Fundamental of Reinforced Concrete, 5th Ed., 2012, by N.C. Sinha and S.K. Roy, INDIA.

5-Fundamental of Prestressed Concrete, 3th Ed., 2011, by N.C. Sinha and S.K. Roy, INDIA.