7th Semester	RCI7D002	Design of Concrete Structures-II	L-T-P 3-0-0	3 Credits

Module I: (06 Hours)
Design of Foundations:
Combined Footing: Rectangular,Trapezoidal,raft,strap,pile foundation:single/group pile.

Module II: (06 Hours)
Design of Water tanks: Design requirements, Design of elevated and Intze type water tanks.
Calculation of dimensions; Design of top dome; Design of top ring beam ; Design of cylindrical wall ; Design of bottom ring beam, Design of portal frames and domes by LSM and using latest IS codes.

Module III: (10 Hours)
Earthquake Engineering: Introduction to EQ Engineering: Cyclic behaviour of concrete and reinforcement, significance of ductility, ductility of beam, design and detailing for ductility, simple problems based on above concept, Computation of earthquake forces on building frame using Seismic Coefficient Method as per IS 1893-2016.

Module IV: (08 Hours)
Prestressing systems: materials,basic concepts and design of prestressing, losses of prestress, analysis of prestressed beams and slab (pretension and post tension), advantages and application.

Module-V: (10 Hours)
Bridge Engineering: Introduction: classification and components of a standard bridge, economical span, location of piers and abutments, vertical clearance above HFL, scour depth and choice of bridge type.
Standard Loadings for Road Bridges, Impact effect and impact factor calculation for RCC andsteel bridges,Design of single vent rectangular slab culvert.

Books:
[1]   Advanced Concrete Structure Design by P. C. Verghese, Prentice Hall of India
[2]   Limit state design- A K Jain, Nem Chand and Brothers
[3]   Reinforced Concrete Vol. II [Advanced reinforced concrete] By Dr. H. J. Shah Edition
[4]   P. Dayaratham, Design of Reinforced Concrete Structures, New Delhi, Oxford and IBH Publishing Co
[5]   Limit state design of reinforced concrete by B.C. Punmia, AK Jain and A.K. Jain, Laxmi Publishers New Delhi 2007
[6]   J. Krishna and O. P. Jain, Plain and Reinforced Concrete Vol-I & II, Nem Chand and Bros., Roorkee.