DESIGN OF ADVANCED CONCRETE STRUCTURES (3-0-0)

(Relevant IS Codes are permitted for use in the University Examination)

Module I

Introduction to earthquake design and detailing, cyclic behaviour of concrete and reinforcement, significance of ductility, design and detailing for ductility, codal provisions, simple problems based on above concept, computation of earthquake forces on building frames using seismic coefficient method as per IS 1893-2002

Module II

Retaining walls, various forces acting on retaining wall, stability requirement, design of cantilever and counterfort retaining walls,

Design of water tanks, design requirements, design of tanks on ground, under ground and elevated water tanks.

Module III

Introduction to Prestressed concrete: Prestressing system, Pre-tensioning and post-tensioning systems, materials and codes, need for high strength steel and concrete, basic concepts, losses of prestress, analysis of beams under prestress and bending stresses.

Types of bridges, components , various types of loads and forces acting on bridges, types of IRC loading, Design of slab culverts

Reference Books

1. Limit State Design-A.K.Jain, Nemchand & Bros, Roorkee
2. Advanced RCC Design-P.C.Verghese, PHI
3. Earthquake Resistant Design of Structures, Shrikhande and Agrawal, PHI
4. Prestressed Concrete- N.Krishnaraju, TMH
5. RCC Design-B.C.Punmia,A.K.Jain & A.K Jain-Laxmi Publications