

<b>7<sup>th</sup> Semester</b>	<b>RCI7D001</b>	<b>Prestressed Concrete</b>	<b>L-T-P 3-0-0</b>	<b>3 Credits</b>
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**Module I:** (10 hours)

Prestressing system, materials and codes: Basic concept, Losses of prestress, analysis of prestress and bending stresses. Need for high strength steel and concrete. Advantages and applications. Pre-tensioning and post tensioning systems.

**Module II:** (08 hours)

Design of beams : Analysis and design of section for bending and shear, pressure line, concept of load balancing, cracking moment, bending of cables, limit state analysis and design, anchorage zone stresses, design of end block, Application to bridges.

**Module III:** (08 hours)

Selection of prestress concrete members, short term and long term deflections of uncracked members.

**Module IV:** (08 hours)

Flexural strength of prestressed concrete sections, Continuous beams, Design concept concordancy of cables, Secondary design consideration

**Module V:** (06 hours)

Design pre-tensioned and post tensioned beam.

**Books:**

- [1] Prestressed Concrete, N Krishna Raju, Tata McGraw-Hill
- [2] Design of Prestressed Concrete Structures, T Y Lin, Ned H Burns, John Wiley & Sons
- [3] Prestressed Concrete Structures, P. Dayaratnam, P. Sarah, Medtech Publisher

***Digital Learning Resources:***

Course Name: Prestressed Concrete Structure  
 Course Link: <https://nptel.ac.in/courses/105/106/105106118/>  
 Course Instructor: Dr.Amlan K. Sengupta, Prof.Devdas Menon, IIT Madras