

**INDIAN INSTITUTE OF TECHNOLOGY TIRUPATI**  
**PROFORMA FOR NEW COURSE**

1.	Title of the Course	Advanced Design of Concrete Structures
2.	Course Number	CE5108
3.	Status of the Course	Core
4.	Structure of Credits	3-0-0-3
5.	Offered To	PG
6.	New Course/Modification to	New
7.	To be Offered by	Department of Civil & Environmental Engineering
8.	To take effect from	July 2019
9.	Prerequisite	Nil
10.	Whether approved by the Department	Yes
11.	<b>Course Objective:</b> This course will impart an understanding on backgrounds to different code formulations used in the design of RC members, analysis and design of two-way slab systems including inelastic methods, design of compression members and footing subjected to biaxial bending, design of RC members with disturbed regions and design of structural walls	
12.	<b>Course Content:</b> Backgrounds to different code formulations: Design of beams for flexure, shear, torsion and bond; Deflection and crack-width predictions; Analysis and design of RC two-way slab systems (supported on walls/columns/beams) using the equivalent frame and inelastic analysis methods; Compression members: Design of RC short columns under axial compression combined with uniaxial and biaxial bending, generation of P-M interaction diagram, design of slender columns, design of concrete walls; Footings: Introduction, analysis and design of RC footings subjected to biaxial bending; Design and detailing of RC deep beams, corbels, bridge piers, pile caps and beam-column joints; Design and detailing of shear/structural walls.	
13.	Text book(s): 1. Pillai S U and Menon D, <i>Reinforced Concrete Design</i> , Tata McGraw-Hill (2016).	
14.	Reference(s): 1. MacGregor J, <i>Reinforced Concrete: Mechanics &amp; Design</i> , Prentice-Hall International (2008). 2. Subramanian N, <i>Design of Reinforced Concrete Structures</i> , Oxford University Press (2013). 3. Varghese P C, <i>Limit State Design of Reinforced Concrete Design</i> , Prentice-Hall (2013). 4. Wang C K and Salmon C G, <i>Reinforced Concrete Design</i> , John Wiley (2006).	