

1.	Title of the course	Basic Reinforced Concrete Design
2.	Course number	CE306L
3.	Structure of credits	3-1-0-4
4.	Offered to	UG
5.	New course/modification to	Modification To CE3202/8
6.	To be offered by	Department of Civil and Environmental Engineering
7.	To take effect from	July 2022
8.	Prerequisite	Nil
9.	Course Objective(s): This course will introduce the design of reinforced concrete members subjected to gravity loading at limit states of serviceability and collapse conform to Indian design code, IS 456.	
10.	Course Content: Introduction: Grade of concrete, behaviour of concrete under various stress states, creep and shrinkage of concrete, temperature effects in concrete, durability of concrete, properties of reinforcing steel; Basic design concepts such as working stress method, ultimate load method and limit states method; Members under flexure: Analysis of beam sections at service and ultimate loads, design of beams and one-way slabs for flexure; Design for shear, torsion and bond; Serviceability limit states: Deflection and crack-width predictions; Design of two-way wall supported slab; Design of compression members: Uniaxial and biaxial loaded columns; Design of footings for pure axial compression and uni-axial bending.	
11.	Textbook(s): 1. Pillai S U and Menon D, <i>Reinforced Concrete Design</i> , Tata McGraw-Hill (2016).	
12.	Reference(s): 1. Subramanian N, <i>Design of Reinforced Concrete Structures</i> , Oxford University Press (2013). 2. MacGregor J, <i>Reinforced Concrete: Mechanics & Design</i> , Prentice-Hall International (2008). 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).	