1.	Title of the course	Advanced Design of Concrete Structures
2.	Course number	CE514L
3.	Structure of credits	3-0-0-3
4.	Offered to	PG
5.	New course/modification to	Modification To CE5108/8
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 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	
10.	**Course Content:** 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.	
11.	**Textbook(s):** 1. Pillai S U and Menon D, *Reinforced Concrete Design*, Tata McGraw-Hill (2016).	
12.	**Reference(s):** 1. MacGregor J, *Reinforced Concrete: Mechanics & Design*, Prentice-Hall International (2008). 2. Subramanian N, *Design of Reinforced Concrete Structures,* Oxford University Press (2013). 3. Varghese P C, *Limit State Design of Reinforced Concrete Design*, Prentice-Hall (2013). 4. Wang C K and Salmon C G, *Reinforced Concrete Design*, John Wiley (2006).	