

1.	Title of the course	Structural Analysis
2.	Course number	CE206L
3.	Structure of credits	3-1-0-4
4.	Offered to	UG
5.	New course/modification to	Modification To CE2202/8
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 intense to provide the basic concepts of structural analysis. The course will systematically develop the force and displacement based methods for calculating deformations and stress resultants in the structural system such as beams, frames and trusses.	
10.	Course Content: Basic introductory concepts- structural system, elements, joints, stability, equilibrium, compatibility, indeterminacy, types of loading, forcedisplacement relationship, free-body diagrams; Calculation of forces in statically determinate structures- trusses, beams and frames, cables and three-hinged arches, relation between bending moment diagram and elastic curve; Influence lines for beams and trusses under moving loads; Work energy principles- principle of virtual work, potential energy, Castigliano's theorem, complementary energy theorem, reciprocal theorems, Mueller Breslau's Principle; Calculation of displacement in statically determinate structures-unit load and energy method, moment area method, conjugate beam method; Indeterminate structures- force methods, consistent deformation, displacement based methods, slope-deflection method, moment distribution method.	
11.	Textbook(s): 1. Menon D, Structural Analysis, Narosa Publishing House, New Delhi (2017). 2. Hibbeler R C, <i>Structural Analysis</i> , Pearson Education, London (2017).	
12.	Reference(s): 1. Yuan Y H, Elementary Theory of Structures, Prentice Hall, New Jersey (1987). 2. Norris C H, Wilbur J B and Utku S, <i>Elementary Structural Analysis</i> , McGraw-Hill Education, Chenna (2016).	