No	Information on Theory of Structures I	
1.	Unit Name: Theory of Structures I	
2.	Unit Code: CE- 41013	
3.	Classification : Engineering Subject	
4.	Credit Hours : 2.5	
	2 for lecture: (2 hours ×15 weeks)	
5.	Semester/ Year Offered: 1/4	
6.	Pre-requisite (if any): CE-31013, CE-32013	
7.	Mode of Delivery : Lecture and Tutorial	
8.	Assessment System and Breakdown of Marks::	
	Assignment /Report	10%
	Classwork/Tutorial	20%
	Final examination	70%
	Total	100%
9.	Academic Staff Teaching Unit:	
10.	Objective of Unit: The objective of this course is -to apply theories of structure for civil engineering fields.	
11.	Learning Outcome of Unit: On completion of this unit, students shall be able to: (a) to analyze statically determinate trusses (b) to draw the influence lines for statically determinate structures (c) to determine the elastic deflections of structures	
12.	Synopsis of Unit: Plane trusses and space trusses, influence line for statically determinate structure, deflection of beams by using virtual work method, integration, moment area theorem, elastic load method and conjugate beam method.	
13.	**Topics:** **1. Plane Trusses and Space Trusses** Common Types of Trusses Classification of Coplanar Trusses The Method of Joints Zero-Force Members The Method of Sections Compound Trusses	

	Complex Trusses Space Trusses **2. Influence Lines for Statically Determinate Structures** Influence Lines Influence Lines for Beams Influence Lines for Trusses Maximum Influence at a Point due to Series of Concentrated Loads Absolute Maximum Shear and Moment **3. Deflection by Virtual Work Method** Method of Virtual Work : Beams and Trusses **4. Deflection of Structures** Moment Area Theorem Elastic Load Methods Conjugate Beam Method
14.	**Main References:** Structural Analysis, Ninth Edition, R.C.Hibbeler
15.	**Additional References:** Elementary Structural Analysis, Fourth Edition, Senol UTKU, Charles Head Norris, John Benson Wilbur

CE-41013, Theory of Structures I

Course outcomes and Indicators

	Course Outcomes	Indicators
1.	to find the maximum normal and maximum shear stress at a point and the orientation of elements upon which they act	• Finding the maximum normal and shear stresses at a point and orientation of elements
2.	to analyze statically determinate trusses	• Analysis of statically determinate trusses by using joint method and section method
3.	to draw the influence lines for statically determinate structures	• Procedures for obtaining influence lines • Concept and application of influence lines • Influence line diagram for statically determinate beams
4.	to determine the axial load needed to buckle a so-called ideal column	• Calculation the axial load to buckle a column
5.	to determine the elastic deflections of structures	• Calculation deflections of structures by using virtual work method, integration method, moment area theorem, elastic load method and conjugate beam method