

**Subject Code: 01CI0101**

**Subject Name: Elements of Civil Engineering**

**B. Tech. Year- I (Semester - 1)**

**Type of course :** Under Graduate

**Prerequisite :** NA

**Rationale :** Students will gain Basic Civil Engineering knowledge

**Course Outcome :**

After completion of this course, student will be able to

1. Recognize importance of Civil engineering and its day to day applications.
2. Interpret the plan/maps, locate the objects on ground from map and from site to on paper plan/map.
3. Describe qualitative comparison between different materials and its selection.
4. Understand the water cycle its importance, water resources its consumptive use.
5. Able to create & interpret building planning and will be able to draw plan, section and elevation.
6. Acquaint with the various modes of transportation.

**Teaching and Examination Scheme:**

Teaching Scheme			Credits	Examination Marks					Total Marks
THEORY	TUTORIAL	PRACTICAL		Theory Marks			Practical Marks		
			ESE(E)	IA	CSE	Viva (V)	Term Work (TW)		
3	0	2	4	50	30	20	25	25	150

**Content:**

Sr. No.	Content	Total Hrs.
1	<b>Introduction to civil Engineering:</b> Scope of civil Engineering & Role of civil Engineer, Unit conversion, common units used in practice of civil engineering	03
2	<b>Elements of Surveying :</b> <b>Introduction:</b> applications, fundamental principles and classification of surveying, classification of plans & maps <b>Linear measurement:</b> methods, Instruments used in chain surveying, Selection of stations, Chaining, Ranging, Offsetting.	17

	<p><b>Angular Measurement:</b> Instruments used, Types of compass, Types of meridians and bearings, Measurement of bearings, computation of angles. Compass traversing and correction of bearings for local attraction.</p> <p><b>Levelling:</b> Aims and applications, Definition of various terms, Instruments for levelling, Methods of levelling, Recording observations in level-book, Computing reduced levels by HI and rise &amp; fall method, Definition of contour, Characteristics of contours of different terrains and application of contour maps.</p> <p><b>Modern Surveying:</b> Measurement by Electronic devices, Introduction to GIS, GPS &amp; RS</p>	
3	<p><b>Building Materials:</b> Introduction, properties &amp; classifications of materials: Bricks/blocks, cement, lime, sand, aggregates, stone, ceramic, glass, concrete, Ferrous metals &amp; Non ferrous metals, glass, timber and modern materials</p>	05
4	<p><b>Building planning and its components:</b> Classification of buildings, Principles of planning, Conceptual planning of Residential &amp; Public building, Building components &amp; their functions, types of load on building</p>	06
5	<p><b>Transportation Engineering:</b> Role of transportation in national development, Modes of transportation, types of roadways, intro to traffic engineering, introduction to Urban Transportation system.</p>	05
6	<p><b>Water resources &amp; Management :</b> Hydrological cycle, types of water resources, water demand &amp; water scarcity, Water use and its conservation techniques, Storage structures, water conveyance</p>	04
7	<p><b>Next Generation Civil Engineering:</b> Building automation, Green building, advanced materials, sky scrapers, civil engineering wonders in the world</p>	02

### Distribution of Theory Marks

R Level	U Level	A Level	N Level	E` Level	C Level
20	30	25	15	10	--

**Legends:** R: Remember; U: Understand; A: Apply; N: Analyze; E: Evaluate; C: Create

### List of Experiments :

1. Chain and Compass Survey Project.
2. Profile Leveling Survey Project.
3. Basics sign & conventional symbol drawing sheet
4. Building planning drawing sheet

### Reference books :

1. <http://www.nptel.iitm.ac.in/courses.php?branch=Civil>
2. <http://www.nptel.iitm.ac.in/courses/Webcourse-contents/IIT-ROORKEE/SURVEYING/home.htm>

3. <http://www.nptel.iitm.ac.in/video.php?courseId=1040>
4. <http://www.nptel.iitm.ac.in/video.php?courseId=1059>
5. <https://greenbuildingsolutions.org/Main-Menu/...Materials.../New-Materials-Application...>
6. <http://www.constructionworld.in/>