

Course No.	Course Name	L-T-P-Credits	Year of Introduction
<b>CE100</b>	<b>BASICS OF CIVIL ENGINEERING</b>	<b>2-1-0-3</b>	<b>2016</b>
<b>Course Objectives</b>			
<ol style="list-style-type: none"> <li>To inculcate the essentials of Civil Engineering field to the students of all branches of Engineering.</li> <li>To provide the students an illustration of the significance of the Civil Engineering Profession in satisfying societal needs.</li> </ol>			
<b>Syllabus</b>			
<p>General introduction to Civil Engineering - Introduction to types of buildings, Components of a residential building, Introduction to industrial buildings; Introduction to planning of residential buildings - Simple building plans; Introduction to the various building area terms; Setting out of a building; Surveying – Principles, Objectives, Horizontal measurements with tapes, Ranging; Levelling – Instruments, Reduction of levels; Modern surveying instruments; Building materials – Bricks, cement blocks, Cement, Cement mortar, Steel; Building construction – Foundations, Brick masonry, Roofs, Floors, Decorative finishes, Plastering, Paints and Painting; Basic infrastructure and services – Elevators, Escalators, Ramps, Air conditioning, Sound proofing, Towers, Chimneys, Water Tanks; Intelligent buildings.</p>			
<b>Expected outcome</b>			
<ol style="list-style-type: none"> <li>The students will be able to illustrate the fundamental aspects of Civil Engineering.</li> <li>The students will be able to plan and set out a building.</li> <li>Students will be able to explain the concepts of surveying for making horizontal and vertical measurements.</li> <li>They will be able to illustrate the uses of various building materials and explain the method of construction of different components of a building.</li> <li>Students will be able to discuss about various services in a building.</li> </ol>			
<b>References Books:</b>			
<ul style="list-style-type: none"> <li>Chudley, R., Construction Technology, Vol. I to IV, Longman Group, England</li> <li>Chudley, R. and Greeno, R., Building Construction Handbook, Addison Wesley, Longman Group, England</li> <li>Gopi, S., Basic Civil Engineering, Pearson Publishers</li> <li>Kandya, A. A., Elements of Civil Engineering, Charotar Publishing house</li> <li>Mamlouk, M. S., and Zaniewski, J. P., Materials for Civil and Construction Engineering, Pearson Publishers</li> </ul>			

- McKay, W. B. and McKay, J. K., Building Construction Volumes 1 to 4, Pearson India Education Services
- Minu, S., Basic Civil Engineering, Karunya Publications
- Rangwala, S. C., Essentials of Civil Engineering, Charotar Publishing House
- Rangwala, S. C. and Dalal, K. B., Engineering Materials, Charotar Publishing house
- Rangwala, S. C. and Dalal, K. B., Building Construction, Charotar Publishing house

### Course Plan

Module	Contents	Hours	Sem. Exam Marks
I	General Introduction to Civil Engineering - Various disciplines of Civil engineering, Relevance of Civil engineering in the overall infrastructural development of the country.	2	15%
	Introduction to types of buildings as per NBC; Selection of site for buildings.	2	
	Components of a residential building and their functions. Introduction to industrial buildings – office / factory / software development office / power house / electronic equipment service centre (any one related to the branch of study)	2	
	Students have to visit one such building and submit an assignment about the features of any one of the listed building related to their branch (Not included for exam).	1	
II	Building planning - Introduction to planning of residential buildings- Site plan, Orientation of a building, Open space requirements, Position of doors and windows, Size of rooms; Preparation of a scaled sketch of the plan of a single storeyed residential building in a given site plan.	4	15%
	Introduction to the various building area terms - Computation of plinth area / built up area, Floor area / carpet area - for a simple single storeyed building; Setting out of a building.	3	
<b>FIRST INTERNAL EXAM</b>			
III	Surveying - Principles and objectives of surveying;	1	15%
	Horizontal measurements – instruments used – tape, types of tapes; Ranging (direct ranging only) – instruments used for ranging.	3	
	Levelling - Definitions, principles, Instruments (brief discussion only) - Level field book - Reduction of levels - problems on levelling (height of collimation only).	3	
	Modern surveying instruments – Electronic distance meter, digital level, total station, GPS (Brief discussion only).	1	
IV	Building materials - Bricks, cement blocks - Properties and specifications.	2	15%

	Cement – OPC, properties, grades; other types of cement and its uses (in brief).	1	
	Cement mortar – constituents, preparation.	1	
	Concrete – PCC and RCC – grades.	1	
	Steel - Use of steel in building construction, types and market forms.	1	
<b>SECOND INTERNAL EXAM</b>			
<b>V</b>	Building construction – Foundations; Bearing capacity of soil (definition only); Functions of foundations, Types - shallow and deep (sketches only).	2	20%
	Brick masonry – header and stretcher bond, English bonds – Elevation and plan (one brick thick walls only).	2	
	Roofs – functions, types, roofing materials (brief discussion only).	1	
	Floors – functions, types; flooring materials (brief discussion only).	1	
	Decorative finishes – Plastering – Purpose, procedure.	1	
	Paints and Painting – Purpose, types, preparation of surfaces for painting (brief discussion only).	2	
<b>VI</b>	Basic infrastructure and services - Elevators, escalators, ramps, air conditioning, sound proofing (Civil engineering aspects only)	2	20%
	Towers, Chimneys, Water tanks (brief discussion only).	1	
	Concept of intelligent buildings.	2	
<b>END SEMESTER EXAM</b>			