

Course Type	Course Code	Name of the Course	L	T	P	Credits
ESC1	NCEE101	Basic Civil Engineering	3	0	0	3

Course Objective

The course aims to impart an understanding of the fundamentals of various aspects of civil engineering for infrastructures development.

Learning Outcomes

Upon successful completion of this course, the students should be able to:

- Understand the definition and significance of civil engineering in infrastructure development shaping towards societal goals
- Understanding the different aspects of civil engineering and their applications in infrastructural growth.
- Cultivating the motivation for pursuing civil engineering as a multidisciplinary subject

Unit No.	Topics to be Covered	Lecture Hours	Learning Outcome
01	Introduction to Civil Engineering: Definitions, importance, Various types of infrastructures and their role in nation developments, Buildings, Highways, Railways, Airports, Bridges, Canals, Aqueduct, Dam, Barrage.	05	To develop the understanding of civil engineering and various infrastructures
02	Surveying: Introduction and fundamental principles, Classifications, Map, Scale, Contours, Basics of Chain surveying, compass surveying, Levelling, Tools of Surveying.	07	To know the basics of the surveying
03	Buildings Materials: Bricks, Stones, Sand, Cement, Timber, Mortars, Concrete (Plain and Reinforced), Advance Materials.	07	To know the various building materials
04	Buildings Planning and Constructions: Basics of building planning, Foundations and their types, Superstructures, Brick and stone masonry, Stairs, doors and windows, Flooring, Roofing	10	To understand the fundamentals of constructions, substructures and super structures of buildings
05	Basics of hydraulic structures: Alluvial and non-alluvial canals, Cross drainage works, Rivers training works, Diversion works	07	To know the fundamentals of various hydraulic structures
06	Traffic and Transportation: Introduction to transportation system, Basics of traffic flow theory, Control devices and traffic safety, geometrical design of roads	06	To understand the fundamentals of traffic and transportation engineering

Text Books:

1. Bhavikatti, S. S. (2010). Basic Civil Engineering. New Age International Publishers
2. Punmia, B. C., Jain, A. K., and Jain, A. K. (2003). Basic civil Engineering. Laxmi Publications, New Delhi

Reference Books:

1. Duggal, S. K. (2017). Surveying: Volume - 1 & 2, 4th Edition, McGraw Hill Education (India) Pvt. Ltd., Chennai.
2. Chakroborty, P., and Das, A. (2017). Principles of transportation engineering. PHI Learning Pvt. Ltd.
3. Gambhir, M.L. and Jamwal, N. (2014). Building and Construction Materials: Testing and Quality Control, McGraw Hill Education (India) Pvt. Ltd., New Delhi.
4. Garg, S. K., (2005). Irrigation engineering and hydraulic structures. Khanna Publishers, Delhi.

