

Course Title	Basics of Civil Engineering
Course Code	CV107
Course Credit	Lecture : 02
	Practical : 01
	Tutorial : 00
	Total : 03

Course Outcomes

After Successful completion of the above course, students will be able to:

1. **Apply** pertinent mathematical, physical and engineering mechanical principles to the system to **solve** and **analyze** the problems.
2. **Understand** scope of various branches of Civil engineering and **recognize** the role of Civil engineer in infrastructure development.
3. **Distinguish** various buildings based upon occupancy and types of structure.
4. **Understand** various tests on building materials, **apply** and interpret test data to adopt suitable materials for conventional building construction.

Detailed Syllabus

Sr. No.	Name of Chapter & Details	Hours Allotted
Section – I		
1	Introduction: Impact of Infrastructural Development on the Economy of a Country, Role of Civil Engineers, Branches of civil engineering, Scope of civil engineering	03
2	Construction Materials: Requirement, types, uses, properties and importance of Civil Engineering materials like Stone, Bricks, Lime, Cement, Timber, Sand, Aggregate, Mortar and Concrete.	06
3	Building Construction: Classification of buildings based upon occupancy and structure, Common building components, their functions, and nominal dimensions. Introduction to Tall structures and special structures.	05
Section – II		

4	Introduction: Scalar and Vector Quantities, composition and resolution of vectors, system of units, definition of space, time, particle, rigid body, force.	02
5	Fundamentals of statics: Principles of statics, coplanar, concurrent and non-concurrent, parallel and non-parallel forces, composition and resolution of forces, moments & couples - their properties, Combination of coplanar couples and forces, equilibrant, equilibrium, free body diagrams, analytical conditions of equilibrium for coplanar force systems	09
6	Support Reactions: Types of loads, Types of supports, Types of beams; Determination of support reactions.	03

Term Work: Term work shall be based on the above mentioned course content.

Instructional Method and Pedagogy

- Lectures will be conducted with the aid of multi-media projector, blackboard, OHP etc.
- Assignments based on course content will be given to the students at the end of each unit/topic and will be evaluated at regular interval.
- Surprise tests/Quizzes/Seminar/Tutorials will be conducted.
- The course includes field work, where students have an opportunity to build an appreciation for the concepts being taught in lectures.

Reference Books:

1. S.K. Duggal, "*Building Materials*", 4th Edition, New Delhi :New Age International (P) Ltd., Publishers, 2012 (Reprint : 2014)
2. S.C. Rangwala, "*Engineering Materials*", 14th Edition, Anand: Charotar Publishing House Pvt. Ltd., 2013.
3. Dr. B.C.Punmia, Ashok Kr. Jain, Arun Kr. Jain, "*Building Construction*", 10th Edition, New Delhi : Laxmi Publications(P) Ltd., 2012
4. J.L. Meriam, L.G. Kraige, "*Engineering Mechanics: Statics Volume-1*" - SI Version, 17th Edition, New Delhi :Wiley India Pvt. Ltd., 2013
5. R.C. Hibbeler, Ashok Gupta, "*Engineering Mechanics - Statics and Dynamics*", 11th Edition, Delhi: Pearson Education India,2009
6. S. B. Junnarkar, H. J. Shah, "*Mechanics of Structures Vol 1*" (*Strength of Material*), 30th Edition, Anand: Charotar Publishing House Pvt. Ltd., 2012.

Additional Resources:

- Prof. Y. Nath, IIT Delhi, Web<http://nptel.ac.in/courses/105102090/>
- Prof. M.S. Sivakumar, IIT Madras, <http://nptel.ac.in/courses/105106116/>
- www.asce.org
- www.engineeringcivil.com
- www.ice.org
- ww.aboutcivil.com

List of Experiments

Subject Code : CV107

Subject Name: Basic Civil Engineering

Sr. No	Aim of experiment
1	Determine unit weight of a timber sample.
2	Validate law of parallelogram of forces.
3	Validate law of polygon of forces.
4	Validate for equilibrium condition of coplanar and non-concurrent forces.
5	Determine support reactions for beam.
6	Measure and record dimension of a brick sample.
7	Determine water absorption of a brick sample
8	Determine efflorescence of a brick sample.
9	Determine moisture content of a timber sample.
10	Validate law of parallelogram of forces.
11	Validate law of polygon of forces.
12	Validate for equilibrium condition of coplanar and non-concurrent forces.
13	Determine support reactions for beam.
14	Measure and record dimension of a brick sample.
15	Determine water absorption of a brick sample

List of Mini Projects:

Subject Code : CV107

Subject Name: Basic Civil Engineering

Sr. No	Projects
1	Prepare scaled drawing containing plan, elevation and cross section for centre line layout of a sample building.
2	Present a poster related to any of topic covered in syllabus.



SYLLABUS