

<b>Course code:</b> Course Title	<b>Course Structure</b>			<b>Pre-Requisite</b>
	<b>L</b>	<b>T</b>	<b>P</b>	
<b>CE103: Testing of Civil Engineering Materials</b>	1	0	2	<b>NIL</b>

**Course Objective:** The objective of the course is to test on Construction materials like bricks, cement, aggregate, concrete, and steel.

<b>S. No</b>	<b>Course Outcomes (CO)</b>
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<b>CO1</b>	Test the suitability of bricks for construction purpose.
<b>CO2</b>	Test the quality of cement.
<b>CO3</b>	Validate the suitability of aggregates for making concrete.
<b>CO4</b>	Test the quality of cement concrete and steel.

<b>S. No</b>	<b>Contents</b>
<b>UNIT 1</b>	Testing of bricks: Efflorescence of burnt clay building bricks, Compressive strength of brick, Water absorption test of brick.
<b>UNIT 2</b>	Testing of cement: Fineness, Standard consistency and setting times, Soundness, Compressive strength, Specific gravity.
<b>UNIT 3</b>	Testing of aggregates: Specific gravity and water absorption of coarse and fine aggregates, Particle size distribution and fineness modulus, Silt content of fine aggregate, Aggregate crushing value, Abrasion resistance using Los Angles machine, Flakiness and Elongation indices.
<b>UNIT 4</b>	Testing of cement, concrete, and steel: Consistency of freshly mixed concrete by slump test, Compressive strength of nominal Mix concrete, Flexural strength and splitting tensile strength of nominal mix concrete, Non-destructive testing of concrete, Tensile strength of steel, Hardness test of metal.

## REFERENCES

<b>S.No.</b>	<b>Name of Books/Authors/Publishers</b>	<b>Year of Publication / Reprint</b>
1	Material Testing Laboratory Manual; C. B. Kukreja, K. Kishore, R. Chawla, 3rd Edition,	2005
2	Building Materials; S. K. Duggal, New Age International Publishers.	2010
3	Civil Engineering Materials and their Testing; S. D. Hasan, Narosa Publishing House.	2011
4	Indian standard codes: Building material and steel structure IS codes and their description; Civil engineering Daily.	2018

<b>Course code: Course Title</b>	<b>Course Structure</b>	<b>Pre-Requisite</b>
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<b>CE106: Engineering Graphics and Building Drawing</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>NIL</b>
	<b>1</b>	<b>0</b>	<b>2</b>	

### Course Objective:

<b>S. No</b>	<b>Course Outcomes (CO)</b>
<b>CO1</b>	Visualize plan, elevation, and sectional view of an object.
<b>CO2</b>	Explain the spatial visual aspects of technical drawing.
<b>CO3</b>	Examine and visualize the objects with CAD for emerging digital era.
<b>CO4</b>	Visualize the drawing details of public buildings viz school, hostel, and hospital.

<b>S. No</b>	<b>Contents</b>
<b>UNIT 1</b>	Projections of points and lines. Projection of polygonal surface, Projection of solids like prisms, pyramids, cylinder, and cone Sections of Solids: Right regular solids and Auxiliary views for the true shape of the sections.
<b>UNIT 2</b>	Development of surfaces for various regular solids such as Prism, Cylinder, Pyramid and Cone. Isometric Projection: Isometric scales, Isometric projections of simple and combination of solids.
<b>UNIT 3</b>	Introduction to AutoCAD: Basic commands for 2D drawing: Line, Circle, Polyline, Rectangle, Hatch, Fillet, Chamfer, Trim, Extend, Offset, Dimension style. Layout management, Plot setting, Create and manage dimension.
<b>UNIT 4</b>	Transformation of Projections: Conversion of Isometric Views to Orthographic Views and Vice-Versa in AutoCAD. Creation of engineering models and their presentation in standard 2D blueprint form.
<b>UNIT 5</b>	Conventional signs for civil engineering materials, Plan, elevation and section of public buildings such as school, hostel and hospital.

### REFERENCES

<b>S.No.</b>	<b>Name of Books/Authors/Publishers</b>	<b>Year of Publication / Reprint</b>
1	Fundamentals of Engg. Drg; W. J. Lucadder, Prentice Hall.	1976
2	Elementary Engineering Drawing; N. D. Bhatt, Charotar Publication, 54th edition.	2023
3	Civil Engineering Drawing; Rangwala, Charotar Publishing House Pvt. Ltd, 3rd edition.	2017
4	Engineering Graphics with AUTOCAD; J. Bethune, D. Byrnes, Peachpit Press, 1st edition.	2022
5	Engineering Graphics with AutoCAD, D. M. Kulkarni, A. P. Rastogi, A. K. Sarkar, Prentice Hall India Learning Private Limited.	2010