

1.	Title of the course	Building Materials Laboratory
2.	Course number	CE304P
3.	Structure of credits	0-0-3-2
4.	Offered to	UG
5.	New course/modification to	Modification To CE3193/8
6.	To be offered by	Department of Civil and Environmental Engineering
7.	To take effect from	July 2022
8.	Prerequisite	Nil
9.	<p><b>Course Objective(s):</b> This course will impart an understanding on the test methods to find the physical and mechanical properties of building materials such as cement, aggregates, concrete, brick, tile etc. Also, develops an understanding and hands-on experience of the laboratory techniques to measure strength and stiffness properties, hydraulic characteristics of different soils. Also, assesses the influence of the measured properties of the building materials on the likely performance of substructure and superstructure.</p>	
10.	<p><b>Course Content:</b> Study of physical and mechanical properties of cement, fine and coarse aggregates, fresh and hardened concrete, and brick and tile; Study of testing methods and standard specifications of building materials systems; Classification of soil through grain size distribution and Atterberg limits tests; Determination of specific gravity, compaction characteristics, consolidation properties and hydraulic conductivity of soils; Evaluation of shear strength parameters of soil using direct shear and triaxial compression tests.</p>	
11.	<p><b>Textbook(s):</b></p> <ol style="list-style-type: none"> <li>1. Bardet J P, <i>Experimental Soil Mechanics</i>, Pearson (1997).</li> <li>2. Varghese P C, <i>Building Materials</i>, Prentice-Hall (2005).</li> </ol>	
12.	<p><b>Reference(s):</b></p> <ol style="list-style-type: none"> <li>1. Germaine J T and Germaine A V, <i>Geotechnical Laboratory Measurements for Engineers</i>, Wiley (2009).</li> <li>2. Head K H, <i>Manual of Soil Laboratory Testing</i>, Whittles Publishing (2006).</li> <li>3. Mamlouk M S and Zaniewski J P, <i>Materials for Civil and Construction Engineers</i>, Pearson Education Limited (2018).</li> <li>4. Somayaji S, <i>Civil Engineering Materials</i>, Pearson Education India (2011).</li> </ol>	