

PGD in Real Estate Construction and Management		Trimester I	
Construction Materials		Code : RECM 03	
Periods per week		Lecture	03
		Practical	--
		Tutorial	02
Evaluation Scheme		Hours	Marks
	Term End Exam (Theory)	03	100 (Weightage 50 %)
	Internal Continuous Assessment	--	50(Weightage 100%)
	Test	01	20
	Quiz/viva/ presentations/ group work based on assignments given by faculty	--	30
Objectives	<ul style="list-style-type: none"><li>To study and learn wide variety of materials, their identification and selection.</li><li>To study key properties of various materials.</li></ul>		
Outcome	After successful completion of this course, students will be able to <ul style="list-style-type: none"><li>Understand and Evaluate use of different materials and properties</li><li>Compare different materials viv-a-vis applications</li></ul>		
Detailed Syllabus			
Units	Topics		Duration (Hrs.)
1	Cement :  Composition of cement, Portland cement, Rapid Hardening cement, Quick setting, High Alumina cement, Sulphate resistant cement, White cement, Coloured cement and special uses, properties of cement such as setting , hardening of cement relative strength, grades of cement, manufacturing of cement, list and necessity of tests on cement.		04

<b>Units</b>	<b>Topics</b>	<b>Duration (Hrs.)</b>
<b>2</b>	<b>Bricks:</b> Raw materials , manufacture of bricks, preparation of clay, moldings and burning in clamps and kilns, Allahabad, Hoffman's & Bull trench and kilns, varieties of bricks and their uses in construction, fire bricks, fire clay and their uses, concrete blocks, modern brick manufacturing methods	<b>03</b>
<b>3</b>	<b>Tiles:</b> Roofing tiles, flat, half round and country tiles, Mangalore and similar tiles, glass roofing tiles and their uses, nano tiles, types of flooring tiles, transparent and opaque glazing.	<b>03</b>
<b>4</b>	<b>Sand:</b> Sources, properties, uses and production of sand, natural and manufactured sand.	<b>03</b>
<b>5</b>	<b>Mortar and Concrete:</b> Varieties of mortar: mud mortar, lime mortar and cement mortar, ingredients mixing of mortar, properties, uses in construction. Cement concrete, Ingredients, their function and use of concrete.	<b>05</b>
<b>6</b>	<b>Steel:</b> Types, properties and use of steel.	<b>02</b>
<b>7</b>	<b>Aluminum and Glass:</b> Properties and uses of aluminum, properties and use of glass.	<b>03</b>
<b>8</b>	<b>Smart and Intelligent Materials:</b> Types & differences between Smart and Intelligent materials – Special features – Case studies showing application of smart and intelligent materials	<b>04</b>
<b>9</b>	<b>Plastics and Paints:</b> Broad introduction to plastics as engineering materials, varieties, properties and uses of paints.	<b>03</b>
	<b>Total</b>	<b>30</b>

**Text Books :**

- 1 Ashby, M.F and Jones D.R.H.H, (2005) “Engineering Materials: an Introduction to Properties, Applications and Designs”, Elsevier Publications.
- 2 Ghose D N, (1989), “Materials of Construction”, Tata McGraw Hill Publishing Ltd.

**Reference Books:**

- 1 Basem M. (2014) “Construction Technonlogy for High Rise Buildings: Handbook” CreateSpace Independent Publishing Platform.
- 2 Mamlouk, M.S and Zaniewski. J.P (1999) “Materials for Civil and Construction Engineers”, Prentice Hall Inc.
- 3 Eroll Van Amsterdam (2002) “Construction Materials for Civil Engineers” Juta Academics.
- 4 Mamlouk M. (2014) “Materials for Civil and Construction Engineering” Pearsons.

**Internal Continuous Assessment**

1. One class test based on the above syllabus.
2. Quiz, viva, presentation, Group work, based on assignments given by faculty.