

**Subject : Construction Materials**

**Class : First year**

**Hours : 2hrs ( Theoretical ) , 3hrs ( Practical )**

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**Objectives :**

The student must know the properties of construction materials , their standard specifications , & standard tests .

<b>Week</b>	<b>Practical Syllabus</b>
<b>1</b>	<b>Recognition of laboratory , Using of balances .</b>
<b>2&amp;3&amp;4&amp;5</b>	<b>Clay brick tests : Density , Dimension , Absorption , Compressive strength , Efflorescence , Analysis of soluble salts , Porosity</b>
<b>6</b>	<b>Sand-lime brick tests : ( Density , Absorption , Compressive strength ) .</b>
<b>7&amp;8</b>	<b>Concrete bricks &amp; block tests : ( Density , Absorption , Compressive strength ) .</b>
<b>9</b>	<b>Cellular concrete block tests : (Density ,Absorption , Compressive strength ) .</b>
<b>10&amp;11&amp;12</b>	<b>Bonding materials ( gypsum ) tests : , Fineness , Standard consistency ,Time of setting of gypsum, Compressive strength , Tensile strength of gypsum .</b>
<b>13&amp;14</b>	<b>Tile tests : ( Dimension , Total absorption, Face absorption, Modulus of rupture ) .</b>
<b>15</b>	<b>Concrete flags :( Absorption , Fracture strength ) .</b>
<b>16</b>	<b>Standard specification for water proofing materials</b>
<b>17</b>	<b>Standard specification of epoxy .</b>
<b>18&amp;19</b>	<b>Timber ( wood ) : Compressive strength parallel &amp; perpendicular to fiber test , Modulus of rupture .</b>
<b>20</b>	<b>Steel : ( Tensile strength test ) .</b>
<b>21</b>	<b>Standard specification for insulating materials .</b>
<b>22</b>	<b>Standard specification for acoustical materials .</b>
<b>23</b>	<b>Standard specification for paints .</b>
<b>24</b>	<b>Standard specification for glass .</b>
<b>25&amp;26&amp;27 &amp;28</b>	<b>Bituminous materials ( Asphalt ) tests : Softening point , Penetration , Flash point , &amp; ductility .</b>
<b>29</b>	<b>Standard specification for plastics .</b>
<b>30</b>	<b>Standard specification for polymers .</b>

### **References :**

1. **Materials of Construction / R.C. Smith .**
2. **Civil Engineering Materials / N. Jackson .**
3. **Iraqi Standard Specification .**
4. **American Society for Testing Materials ( ASTM ) .**
5. **انشاء المباني / يوسف الدواف**
6. **انشاء المباني / زهير ساكو ، آرتين ليفون**