

**Subject : Building Construction**

**Class : Second year**

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

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**Objectives :**

**In this subject the student will learn ;Soil investigation and soil bearing capacity , foundation types , building of walls by many masonry types ( brick , stone , block , ....) , forms types and scaffoldings , beams and columns , roofs and floor constructions , thermal and acoustical isolations, damp proofing , finishing works .**

<b>Week</b>	<b>Syllabus</b>
<b>1</b>	<b>Site investigation , phases of site and soil investigation .</b>
<b>2</b>	<b>Methods of soil investigation , open-pit , boring and auger , standard and cone test methods .</b>
<b>3</b>	<b>Bearing capacity , calculation and determination in filed and laboratory , increasing of bearing capacity and its relation with foundation design .</b>
<b>4</b>	<b>Excavation and filling work , cut and fill , shoring system , angle of repose ,failure of embankment , layers of filling .</b>
<b>5&amp;6</b>	<b>Types of foundations , excavation , shoring system , reinforcing and concrete casting , drying of site work .</b>
<b>7</b>	<b>Pile foundations ,bored and driven piles , sheet piles , capping of piles.</b>
<b>8</b>	<b>Masonry stone work , stone building types and specifications , building under ground level , above ground level , preparation of stone building .</b>
<b>9</b>	<b>Brick and block works ,British and Flemish arrangements , procedure to construct walls, connections between old and new walls .</b>
<b>10</b>	<b>Hollow cavity walls , their specifications and components , reinforced walls.</b>
<b>11</b>	<b>Thermal insulation materials , specification and types ,thermal transmittance factor , resistance concept .</b>
<b>12</b>	<b>Acoustical insulation and fire resistance for building</b>
<b>13</b>	<b>Concrete Forms, timber forms( specification and components ), bracing for roofs and columns .</b>

<b>14</b>	<b>Slip and travel forms , components and operation .</b>
<b>15</b>	<b>Scaffolding ,types ,components ,uses .</b>
<b>16</b>	<b>Columns classification , reinforcement , shape of their failures ,spiral reinforcement .</b>
<b>17&amp;18</b>	<b>Beams ,types ,timber ,steel , and concert beams pre-cast pre- stress beams.</b>
<b>19</b>	<b>Floors and roofs , timber , jack arching</b>
<b>20</b>	<b>Concrete floors and roofs , one way , two way ,and ribbed slabs , composite , cellular , arch and shell roofs.</b>
<b>21</b>	<b>Lift slab system and space frame roofing .</b>
<b>22</b>	<b>Damp proofing materials , application and treatment of roofs , basement and walls .</b>
<b>23</b>	<b>Floor finishing , tiles and ceramics</b>
<b>24</b>	<b>Inner wall finishing by Gypsum , paints ,and Gypsum board .</b>
<b>25</b>	<b>External wall finishing by cement mortars , stone tiles and painting .</b>
<b>26</b>	<b>Modern finishing materials , specification , benefits and application system .</b>
<b>27</b>	<b>Doors and windows and upstairs rails .</b>
<b>28</b>	<b>Type of maintenances , preservation and periodical maintenances .</b>
<b>29</b>	<b>Type of failure in building , causes and measures.</b>
<b>30</b>	<b>Treatment of building failures , special materials uses for treatment.</b>

### **References :**

- 1. Handbook of building construction 2006**
- 2. Building design and construction handbook 2001**
- 3. انشاء المباني / زهير زاكو**
- 4. Internet's references**