** **

**YEDITEPE UNIVERSITY**

**FACULTY OF ENGINEERING**

**DEPARTMENT OF CIVIL ENGINEERING**

**CE 492 ENGINEERING PROJECT**

**THESIS TITLE**

**BY**

**NAME SURNAME**

**İSTANBUL, YEAR**

**YEDITEPE UNIVERSITY**

**FACULTY OF ENGINEERING**

**DEPARTMENT OF CIVIL ENGINEERING**

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**THESIS TITLE**

**BY**

**NAME SURNAME**

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**SUPERVISED BY: Title, Name, Surname of the Thesis Supervisor**

**Date of Approval: …………………………………………….**

**DECLARATION**

Write and sign here for an official statement about your promise that the work is carried out by yourself and is solely submitted for your BSc degree in the Yeditepe University. An example follows.

I, Name Surname, declare that all of the work referred to in the Engineering Project has been done by myself and is not submitted for another project or for a degree of this or any other university or other institute of learning.

Signature

**ACKNOWLEDGEMENTS**

**You may want to thank those who supported you on your education and family here. En example follows.**

I wish to express my gratitude to all those who helped me during the preparetion of this project and provided a huge support to complete the Engineering Project.

Firstly, I would like to thank my supervisor, Title Name Surname of your supervisor for his/her advice, continual support and encouragement throughout the duration of the project.

Last but by no means least, I would like to thank both of my parents for their great support and encouragement through my full time education.

**ABSTRACT**

You have to summarize briefly your study here. The abstract should not contain tabular material, chemical formulas, or footnotes. Abstracts should not contain references, but author citing is allowed. An example abstract is as follows.

Consistency which defines the workability of mortars in the freshly-mixed wet state, has been determined for hydrated lime (CL90) and Portland cement (PC) mortars using flow table. CL90 mortar (i.e. the non-hydraulic pure lime mortar) has dramatically lower consistency than cement mortars. The work reported in this paper on hydrated lime and cement mortars has shown that the consistency of these mortars decreases as their hydraulicity. I have shown in this study that the consistency of CL90 mortars can be manipulated by the presence of cement and demonstrated that when CL90 is partially replaced with cement extract solution, CL90 mortars have the same consistency as PC mortars. It is perhaps surprising that a simple compound such as sulphate has almost the same effect as PC on consistency of hydrated lime mortar. The very low consistency is one of the main barriers to the use of hydrated lime mortars in masonry construction. Therefore, the use of hydrated lime mortars may be encouraged if the simple ionic solutions as mix water can be shown to bring hydrated lime mortar up to the same consistency as PC mortar.

Thesis also investigates the effect of this simple ionic solution on the hardened state properties of CL90 mortars and demonstrated that the presence of sulphates as mix water significantly enhanced the hardened state properties of CL90 mortars. CL90 mortars prepared using sulphate solutions in mix water at 7 and 28 days demonstrated significant increase in both flexural and compressive strength when compared to CL90 mortar alone. This is clearly demonstrated in this paper that the presence of sulphate solutions as mix water in CL90 mortars both increases the consistency to release one of the main barriers of the use of hydrated lime mortars in construction and enhances the hardened state properties such as flexural and compressive strength.

**ÖZET**

Yukarıda Abstract bölümünde yazdığınız Abstract’ın Türkçesini buraya yazın.

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**1. INTRODUCTION**

**In this chapter, you should briefly introduce your study. It may include the following information:**

* Literature review
* Previous studies of others
* Aim of the study
* Scope of the thesis

This is the beginning of the thesis therefore the page numbers restart here with numbers. Please see the following page number.

**An example follows:**

The major focus of the study is on the fresh and hardened state properties of cement and lime mortars. The main barrier to the use of lime, especially hydrated lime mortars in practise is that, they set and hardened much slower when compared to cement mortars. Lime mortars also has got much lower compressive and flexural strength properties and are therefore not much preferred in masonry construction. This study takes a detailed look at the differences in ionic composition of the cement and lime mortars. The analysis proved that they are ionic composition is quite different. These differences are clearly noted in Chapter 3. However, the major aim of the thesis was to study these differences to examine the possibility of manipulating the both fresh and hardened state properties of CL90 mortars that would be used in construction practise much simpler.

It has to be highlighted here that CL90 mortar which is a hydraulic lime mortar is not gaining its strength by hydration, rather it is reacting with the carbon dioxide from the atmosphere to hardened and gain its full strength. However, strength gain of the cement mortars is entirely up to the hydration reaction.

When the fresh and hardened properties (such as setting time, consistency, desorptivity, transfer sorptivity, flexural and compressive strength) of hydrated lime and cement mortars are investigated, it can be concluded that these binder properties are significantly dissimilar. So the CL90 and cement form two extreme kind of binders. But between these extreme binders, there exist natural hydraulic limes (NHLs). The fresh and hardened state properties of NHL mortars are generally between the CL90 and cement mortars. NHLs are classified as NHL2, NHL3.5 and NHL5. The nominated number corresponds to the compressive strength of such mortars under normal conditions. It is also very important to state here that NHLs are not produced in Turkey.

Having given a brief introduction to the binder materials, it has to be noted that the major aim here is to understand the possible fresh and hardened state properties of CL90 and cement mortars and further investigate the possibility of manipulating the CL90 mortars in both fresh and hardened state so that its used can receive more attention in masonry construction.

**2. HEADING FOR CHAPTER 2**

The Chapter heading is determined by the writer. All chapter headings will be placed on a new page with 14 points size and ALL CAPS and **bold**.

**2.1 Chapter Sub-Heading**

The Sub-section heading will be written first letter in Capitals and the remaining lower case and should be **bold**.

The letter size for the paragraph is 12 points, the paragraph should be fully aligned on the left and on the right of the paper. The paragraph spacing should be 1.5 points between the paragraph lines.

Between the paragraphs, a spacing of 12 points should be defined as end of the paragraph.

**2.1.1. Second Sub-Heading**

Format of the second sub-heading is the same as the first Sub-Heading.

**3. HEADING FOR CHAPTER 3**

**3.1. First Sub-Heading of Chapter 3**

Any information taken from literature must be cited with a reference number. The number sequence indicates the order of first appearance of the reference in the body of the thesis. If a phrase is identically taken from a resource, “it should be written in quotation marks” and reference number should be given at the end of the sentence, with a comma, followed by the reference number in square brackets, such as, [8]. The reference number should be the same number on the REFERENCES chapter, so that, the reader can find out where this information is extracted from.

**3.2. Second Sub-Heading of Chapter 3**

All figures must be given a caption number that starts with the heading number, followed by the figure number and the title of the figure, placed below the figure. The example in the following figure is placed in Second Sub-Heading of 3.2. therefore the figure number is 3.2.1., the last number being the figure number. What the figure explains must be written in the body of the text by referring to the figure number. Title of the figure must be written first letter in Upper Case for each word.

|  |  |
| --- | --- |
|  (a) |  (b) |
|  (c) |

Figure 3.2.1. Title of the Figure (a) First of multiple image, (b) Second of multiple image, (c) Third of multiple image.

**4.** EXPERIMENTS/ANALYSIS RESULTS

The experiment or the work or research can be presented in a separate chapter.

4.1. First Sub- Heading Title of the Fourth Chapter

The problem that is investigated must be presented with figures and descriptions.

4.2. Second Sub- Heading Title of the Fourth Chapter

Results of the study must be presented with tables, charts and by commenting on these tables and charts. The tables must be given a table number, Starting with the Sub-Heading number and followed by the table number, placed above the table as shown in the following example. The caption words must start with upper case letters.

Table 4.2.1. Caption of the Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Action** | **Sensitivity****(%)** | **Specifity****(%)** | **Total postural transitions** | **Type of subject** |
| lying | 100 ± 0 | - | - | Young and healthy(10 subjects) |
| StSi | 92 ± 9 | 85 ± 11 | 42 ± 0 |
| SiSt | 85 ± 11 | 92 ± 9 |
| walking | 100 ± 0 | - | - |
| lying | 100 ± 0 | - | - | Elderly and healthy(10 subjects) |
| StSi | 89 ± 8 | 83 ± 11 | 42 ± 0 |
| SiSt | 83 ± 11 | 89 ± 8 |
| walking | 98 ± 1 | - | - |

4.3. Third Sub-Section Heading of the Fourth Chapter

Any formula that is presented should be given a number starting with the chapter number and the figure number and shown in parantheses, aligned right and should be referred to in the body of the text with that number. An example follows:

|  |  |  |
| --- | --- | --- |
|  | Φ1$\left(\genfrac{}{}{0pt}{}{x\_{1}}{x\_{2}}\right)$= $\left\{\begin{array}{c}\left(\genfrac{}{}{0pt}{}{4-x\_{2}+\left|x\_{1}-x\_{2}\right|}{4-x\_{1}+\left|x\_{1}-x\_{2}\right|}\right) if \sqrt{x₁^{2}+x₂^{2}} >2\\\left(\genfrac{}{}{0pt}{}{x₁}{x₂}\right) otherwise\end{array}\right.$ |  (4.1) |

**5. CONCLUSIONS**

A short summary of the work carried out, results of the work and discussions on the work can be presented in this section with a few paragraphs.

The reference list in the following chapter contains examples of how a reference is made to a book, to a journal paper, to.a conference paper, to a website etc. Please follow these rules.

**REFERENCES:**

1. Brusey J, Rednic R, Gaura EI, Kemp J, Poole N. Postural activity monitoring for increasing safety in bomb disposal missions. *Measurement Science and Technology*. 2009;20(7):075204. (**Format for journal article)**

2. Hong J, Ohtsuki T, editors. A state classification method based on space-time signal processing using SVM for wireless monitoring systems. *Personal Indoor and Mobile Radio Communications (PIMRC), 2011 IEEE 22nd International Symposium on*; 2011: IEEE. (**Format for conference paper)**

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7. eZ430-Chronos™ Development Tool User's Guide: Texas Instruments; [cited 2011 1 October]. Available from: <http://www.ti.com/lit/ug/slau292d/slauarrrrmut.pdf>. **(Format for web page)**

**APPENDIX A: TITLE OF THE APPENDIX A**

Information that may occupy too many pages, such as detailed drawings, list of data, specifications, etc., within the body of the text can be placed in Appendices.

The figures and tables in the appendices will be numbered with the caption of the appendix, such as “Figure A.1. Reinforcement Plan for 1st Floor Slab”.

**APPENDIX B: TITLE OF THE APPENDIX B**