



Eastern Mediterranean University

DEPARTMENT OF CIVIL ENGINEERING

CIVL284 MATERIALS OF CONSTRUCTION

LABORATORY MANUAL, 2020

DIRECTION ON LABORATORY REPORTS

The purpose of these directions is to help "today's studies and tomorrow's engineers" in writing the laboratory reports in an orderly manner.

"Today's student" must be sure that the laboratory reports are not only some time consuming disturbances by means of which a certain percentage of course grade is guaranteed. Laboratory reports should be considered as a kind of preparation for other technical reports which will be written by "tomorrow's engineer" in this professional life much more often than expects.

The followings should be taken into consideration before writing a report and checked before submission:

I. General:

Reports should be written in correct English. If the correct words and terminology cannot be remembered, a dictionary should be used instead of writing vague and unclear expressions.

Writing should preferably be in ink but in any case pencil should not be used. Writing should also be neat and easily readable.

Title page should be a separate page. Other pages should be numbered properly.

Each section described below should have a proper heading. There should be more than one clear line between the sections.

Passive voice should be used throughout the reports. Expressions such as "I", "We", "My", "Our", etc. should not be used.

II. Title Page:

The first sheet is the title page. It is not numbered. On title page the following information should be found:

- (1) EASTERN MEDITERRANEAN UNIVERSITY
- (2) DEPARTMENT OF CIVIL ENGINEERING
- (3) MATERIALS OF CONSTRUCTION LABORATORY
- (4) CIVL284 "MATERIALS OF CONSTRUCTION"
- (5) GROUP NUMBER
- (6) EXPERIMENT NUMBER
- (7) NAME OF THE EXPERIMENT
- (8) SUBMITTED TO: lecturer's name
- (9) SUBMITTED BY: YOUR NAME & NUMBER
- (10) DATE OF THE EXPERIMENT

III. Sections

After the title page, the main body of the report begins on the second page. The following sections should be found in the report:

1. Object and Scope:

It should be stated that what the test is for. It should be noted that the object is a more general statement than the scope. For example the object may be "to observe the anisotropic character of timber". For this, only pine wood, for example, may be tested in two different directions, parallel and perpendicular to grains, in compression. The scope is restricted to some special features such as type of specimens, testing conditions etc.

2. Preliminary Remarks:

In this section, the importance of the tested characteristic of the material from the civil engineering practice point of view should be mentioned briefly. Also the definition of the terms in the object may be given. In the timber example above, definition of anisotropy may be given in this section. Also the importance of direction of grains in timber design may be emphasized.

3. Test Specimen:

Since the test results have a close connection with the dimensions, shape and type of test specimens, all the known characteristics should be mentioned in this section. A descriptive figure becomes helpful, too.

4. Apparatus:

In this section, the names and other explanatory characteristics (capacity, power source etc.) should be mentioned. Some sketches are also useful. It is advised that these are noted and drawn during the test.

5. Test Procedure:

This section should begin with the preparation of specimens. Then the procedure followed during the test should be mentioned very briefly. The distributed instruction sheets may be useful for this section.

6. Calculations and Graphs:

For the majority of tests it becomes necessary to make some calculation and/or to plot some graphs to obtain the result(s). In such cases, make the calculations in tabular form separately so that they can be checked easily.

Each graph should have a name. Also each of the axes should have a name and a unit. The points should be plotted correctly. If a curve is to be drawn through these points some statistical methods such as "method of least squares" may be used.

7. Result(s):

The result or results should be specified clearly. Results can be found by means of the test as, for example, in determination of time of setting. Sometimes they are found after some calculations and graphs, for example, in determination of modulus of elasticity. In both cases result should briefly be repeated as "The Modulus of Elasticity for the tested steel bar was found to be 21 GPa".

8. Discussion of Results:

This section is probably the most important section where one finds the opportunity of checking his materials knowledge. The test results may not mean anything to a layman but a civil engineer should have the necessary background to evaluate and to interpret the test results for an efficient usage in design. So, at least the following questions or other similar ones should be answered in this section:

- (a) What does the test tell you about the material that you have tested?
- (b) What are the probable effects of test conditions on test results?
- (c) Which values or what kind of a range are given in references for the tested features? How do the obtained results compare with these?
- (d) What is the importance of human factor in the test?
- (e) What factors restrict the accuracy of the test?
- (f) How can the accuracy be improved?

9. Conclusions:

This section should be written very shortly and obviously. It is usually one sentence containing the answer which is included in the "Object" of the experiment. If a certain Standard is followed, it is enough to state whether the material satisfies the Standard's requirements or not.