

## CE 20101 MATERIALS TESTING LABORATORY

### Directions on Laboratory Reports

The purpose of these directions is to help “today’s students 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 that will be written by “tomorrow’s engineer” in his professional life much more often than he expects.

The following should be taken into consideration before writing a report and checked before submission.

#### I. GENERAL

Title page should be a separate page, other pages should be numbered at the corner of the page. 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 report. Expressions such as “I”, “We”, “Our”, “My”, etc. shall not be used.

#### II. TITLE PAGE

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

- a. University’s logo
- b. Civil Engineering Department  
Solid Mechanics Laboratory
- c. Course number
- d. Section Number
- e. The name of the experiment
- f. Submitted to:
- g. Submitted by:
- h. Date: (at the right corner)

#### 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 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 an isotropic character of timber”. For this, only pine wood, for example, may be tested in two directions features such as type of specimens, testing conditions etc.
2. **Preliminary Remarks:** in this section, the importance of the tested characteristics of the material from the civil engineering point of view should be mentioned briefly. Also the definitions of the term in the object may be given. In timber example above, definition of anisotropic may be given in this section. Also the importance of direction of grains in timber design may be emphasized.
3. **Test Specimen:** 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 of the testing equipment (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 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 the tests, it becomes necessary to make some calculation and/or to plot some graphs to obtain the results. In such cases, make the calculations in a tabular form separately, so that they can be checked easily. Each graph should have name, also each of the axis are required to have a name and a unit.
7. **Results:** the result should be specified clearly. Results can directly be found by means of the test as, for example, in measuring concrete mix slump. Sometimes, they are found after some calculations and graphs as, for example, in determination of modulus of elasticity. In both cases, results should briefly be reported as “the slump of the concrete mix was found to be 3 inches” or “the modulus of elasticity for the tested steel bar was found to be 29000 ksi”.
8. **Discussion of The Results:** this section is probably the most important section where one finds the opportunity of checking his material’s knowledge. The test result may not mean anything to a layman but, a civil engineer should have the necessary background to evaluate and to interpret the test results from efficient usage in design. So, at least the following questions or other similar ones should be answered in this section.
  - What does the test tell you about the material that you have tested?
  - What are the probable effects of the test conditions on the test results?
  - Which values or what kind of a range are given in references for the tested features? How can the obtained results be compared with this?
  - What is the importance of the human factor in the test?
  - What factors restrict the accuracy of the test?
  - How can the accuracy be improved?
9. **Conclusion:** in one paragraph, briefly summarize the main points from the discussion section and show how they address the main objective put forth in the introduction section (leave no question unanswered).
10. **References:** use Chicago citation for referencing.