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Having fun in the laboratory experiments at soil mechanics lectures

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In most of the universities, undergraduate students have many soil mechanics lectures in geology, geophysics and civil engineering departments and in many of the universities they have not enough laboratory experiments. The simple and regular experiments in soil mechanics did not take attention from most of the students and as a result the students choose the easiest way: memorizing how to do the experiments instead of learning. In fact, laboratory experiments should be the most important part in the soil mechanic's lectures because these experiments are the applications of the theoretical background of soil mechanics into the real life. In my opinion, experiments should be presented like a performance in a theater to take attention and interest of all the students.

In this paper, some of the interesting tricks are compiled during the eight years of experience in the soil mechanic's laboratories and researches of different universities in North Cyprus and Turkey and also in BOKU, Austria. These funny and interesting tricks can be given as follows:
First of all, the experiment papers can be put without the titles of the experiments in different places of the laboratory to find out by the students. During the laboratory experiments, grain size distributions of different kinds of soils can be wanted from the students in which some of the sieves are missing. Let the students to look for the proper sieves for grain size analysis and after obtaining the grain size distribution curves of the investigated soils, the lecturer put some grams of different kinds of soil mixture and let the students to find out how the grain size distribution curve is changed with the addition of this extra soil. Each student can also use different shaking times to do the experiments to understand how the grain size distribution curves are evaluated wrongly if the shaking time is not enough. At the end of the testing, the students who find out the soil classification correctly can do the Standard Proctor instead of Modified Proctor manually. Also in compaction tests the students can spend their time with fun instead of getting bored with the experiments they have to do during the soil mechanic's lectures. For example, let the students to have five different water contents from the same soil sample. Later let the students lay the soil with different water contents over the floor and give a chance to the students to walk over the soil samples without shoes, and let them think they are walking along the seaside. They can easily feel that which soil is the best to walk over or the optimum water content of the soil sample. The students can also change the energy of the experiment from Standard Proctor to Modified Proctor with an increase of 5 blows in each step. They can easily see how the moisture content-dry unit weight curves are changed in each step. Some exciting tricks can also be applied to the hydrometer analysis to take the attention of the students such as half of the students will use dispersing agent and the rest will not. The students can excitedly recognize that why the same soil gives different results, such as fine sand or silt or clay. In every lecture, there are some students who are more energetic than the others, so a small joke can be prepared for them. Lecturer wants them to obtain ten different water contents of clay with the addition of some grams of water in each step. But the students do not know whether the soil is montmorillonite or stiff clay. As a result, many funny strategies can be applied for the best education of all new generations.