

Objective

The purpose of this assignment is twofold: first, you will get yet another chance to practice your skills in developing simple engineering spreadsheets for civil engineering applications; and second, you can use the spreadsheet to help you with the mechanical analysis of soils used in the filter experiments.

You **must** submit the cover sheet for the assignment and a printout of the spreadsheet for Parts 1 and 2. Also, submit your Excel file for Parts 1-2 to the Dropbox in Canvas.

Part 1: Develop a spreadsheet to develop the particle-size distribution plot for a given set of data. The information in blue is the input data. The results of your spreadsheet are the value printed in black and the particle-size distribution graph. Your spreadsheet should resemble the one shown below. Click [here](#) for an Excel template of this spreadsheet.

Sieve Number	Mass of soil retained on each sieve (g)
4	0
10	41.2
20	55.1
40	80.0
60	91.6
100	60.5
200	35.6
Pan	21.5

Estimate D_{10} , D_{30} , and D_{60} from the particle-size distribution curve and compute the effective size, the uniformity coefficient, C_u , and the coefficient of gradation, C_c .

Part 2: Use your spreadsheet to develop a particle-size distribution plot for the following data:

Sieve Number	Mass of soil retained on each sieve (g)
4	0.0
8	0.1
16	303.6
30	183.1
50	6.9
100	0.1
200	0.0
Pan	0.0

Estimate D_{10} , D_{30} , and D_{60} from the particle-size distribution curve and compute the effective size, the uniformity coefficient, C_u , and the coefficient of gradation, C_c .

Extra Credit: Estimate D_{10} , D_{30} , and D_{60} from the particle-size distribution curve using linear interpolation between appropriate sieves using spreadsheet functions to automate the entire sieve analysis computation.

Part 3: Read Chapter 7 in *Strategies for Creative Problem Solving* by Fogler and LeBlanc.