ENGR/PHYS 216 Spring 2023

HW Assignment 1: Descriptive Statistics and Measurement Error

Concrete is an important material in civil engineering and is widely used in building roads and structures. The compressive strength of concrete is a highly nonlinear function of its age and ingredients. The file *Concrete_Data.xlsx* contains data that was collected as part of a research study by I-Cheng Yeh [1]. Given this data file, calculate the following items:

a) The mean, median, and mode of the water component
b) The range, variance, and standard deviation of the fine aggregate component
c) The mean and standard error of the cement component
d) The mean and standard error of the concrete compressive strength

[1] I-Cheng Yeh, "Modeling of strength of high performance concrete using artificial neural networks," Cement and Concrete Research, Vol. 28, No. 12, pp. 1797-1808 (1998).