CIVL 1112 – Assignment #9

Name: _____

Objective

The purpose of this assignment is to utilize the spreadsheet developed in Assignment #8 to maximize the cost-adjusted SWR.

You must submit the assignment cover sheet, printouts of your spreadsheet for Part 2, and your Word document for Part 3. Also, submit your spreadsheets for Parts 2 and 3 to Canvas. You must follow the Excel format.

Part 1: Please complete the **CIVL 1112 Midterm Survey** (see your email for a link to UMsurvey). The data collected from this survey are used to assess student progress toward meeting the course objectives (see the course syllabus). The course instructor and the Department of Civil Engineering highly value them. Completing the survey is optional and will not impact your performance evaluation for this homework assignment.

Part 2: Adjust the design variables for the RC beam design project and attempt to maximize the cost-adjusted SWR. Keep track of your designs in a table and sort them by cost-adjusted SWR. Assume concrete has an f'_c = 6,000 psi. Construct a graph of the cost-adjusted SWR as a function of the tensile reinforcement A_s.

Please submit your Excel document using the proper file naming convention to the Canvas drop box. In your Excel file, include comments on the results, specifically regarding the reinforced beam's strength, weight, and cost.

Part 3: Use the equation editor in Microsoft Word to describe the reinforced concrete tensile model and cost equation used in Project #2. Click ***here*** for a typical description of the reinforced concrete and cost models. Submit your Word document, with a proper file naming convention, to Canvas.

Part 4. Read Chapters 15 and 16 in "*A Mind for Numbers*" by Barbara Oakley.