**#GEA1: Problem Solving in Transportation/Geotechnical Engineering**

**CEG 4850-901 Capstone Geotechnical/Transportation Design**

**Assignment #GEA1 meets the following course learning objectives.**

# Course Objectives:

1. To familiarize the students with concepts and components in roadway design, including environmental impact evaluation, route planning, geometric design of highways, traffic intersection design, asphalt and concrete pavement design, roadway related geotechnical design and analysis, and specification of quantities.
2. To provide the students the ability to undertake designs of a real-world project in the areas of transportation and geotechnical engineering.
3. Apply critical and analytical thinking to solving problems.

Students are expected to demonstrate detailed critical and analytical thinking in solving these problems. Therefore you are expected to provide detailed organized answers to the following questions. Make sure your documentation you provide for these problems demonstrates you understand the value placed on your answers.

**Evaluation Criteria (each one has equal weighting)**

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| --- | --- | --- | --- |
| **Criteria** | 1 - Poor | 3 - Good  | 5 - Excellent  |
| **Analytical Problem Solving**  | Solution appears flawed, with many mistakes. Analysis is incomplete, with many technical errors.  | Solution is sound and technical work appears to be correct; however, analysis is incomplete in some areas.  | Very professional execution of the design project. Analysis is complete.  |
| **Critical Thinking** | Critical thinking is absent in the discussion of challenges facing the transportation/geotechnical engineer. | Critical thinking is partially evident in the discussion of challenges facing the transportation/geotechnical engineer. | Critical thinking is evident in the discussion of challenges facing the transportation/geotechnical engineer. |
| **Concepts of Roadway Design**  | Demonstrates lack of proficiency in applying concepts of highway design to specific geotechnical and transportation problems. | Demonstrates average proficiency in applying concepts of highway design to specific geotechnical and transportation problems. | Demonstrates proficiency in applying concepts of highway design to specific geotechnical and transportation problems.  |