

CVEN 489
“SUSTAINABLE SYSTEMS IN CIVIL ENGINEERING”

Guidelines for Review Paper/Term Project

The goal of the class paper/project is for students to demonstrate the possibility for improved engineering practice vis-à-vis current issues utilizing sustainability methods. Students may choose one of two possible approaches: [A] the project may be primarily quantitative and focus on re-engineering a previous course project (e.g., CVEN 400) to include sustainability principles, or [B] a paper providing an in-depth review of sustainability metrics and practices for the students' chosen engineering specialty. Students are free to choose their own topic, but all topics must be approved by the course instructor. You should work in groups of 2 students.

Project deliverables are: (1) a written report fully describing [A] project formulation, methods, calculations, findings, and future extensions, or [B] a comprehensive review of sustainable engineering practices, metrics, and past achievements drawn from a minimum of 4 peer-reviewed sources, and (2) an oral presentation of the same items as the written report.

The project is expected to incorporate principles of sustainable development and sustainability as discussed this term. Moreover, there should be explicit [A] quantification or [B] synthesis of various principles (e.g., entropy, natural capital, etc.) and comparisons among alternatives. The discussions on metrics will be particularly helpful in that regard.

The written paper has no maximum or minimum length requirement. It should convey clearly how you approached your chosen problem and the rationale for your eventual decisions to solve the problem. Graphics will be very helpful as well as clearly presented calculations.

The oral presentations should be no longer than 12 minutes. Good visual aids will be expected. Practice your presentation beforehand to ensure timeliness.

Each paper and presentation will be evaluated against the criteria listed below and should be complete with respect to these items.

- Does the project address a problem that is both current and important in the students' field of practice? (10 points)
- Is the relationship of the problem to the idea of sustainability adequately explained? (5 points)
- Does the project approach the solution to the problem using good “pre-sustainability” fundamentals of the students' field of practice? (20 points)
- Does the project methodology successfully incorporate concepts of sustainable development and sustainability along with the fundamentals mentioned above? (30 points)

- Does the project demonstrate the improvement of professional practice by including sustainable development principles? (15 points)
- Is the paper clearly written and understandable with appropriate citations and bibliography? (5 points)
- Is the paper appropriately formatted and without distracting spelling and grammatical errors? (5 points)
- Is the oral presentation clear and understandable with good visual aids and within the time limit? (10 points)