

Department of Civil Engineering

CE 5356 (28474) – Sustainable Engr. Design/Elective I/Elective II/Elective III

Instructor: Vivek Tandon, x-6924, vivek@utep.edu

Office:A-221

Class Time: MW 3:00-4:20 PM

Class Room: CRBL 304

Office Hours: Students are always welcome

Text Books

1. *Striebig/Ogundipe - Bundle: Engineering Applications in Sustainable Design and Development ISBN: 9781305924482.*

Catalog Description

Sustainable Engineering Design Fundamentals from engineering and science to develop an in-depth understanding of sustainable design principles. Students will be exposed to emerging concepts such as zero energy and net-positive energy engineering systems. In addition, the course will focus on

Course Content

This course aims to provide a problem-based quantitative approach for sustainable design and development. Sustainability is essential in manufacturing, construction, planning, and design. The sustainable solutions should include the following important elements/steps: (a) translating and understanding societal needs into engineering solutions such as infrastructures, products, practices, and processes; (b) explaining to society the long-term consequences of these engineering solutions; c) resilient development, and (d) educating the next generation of scientists and engineers to acquire both the depth and breadth of skills necessary to address the important physical and behavioral science elements of environmental problems and to develop and use integrative analysis methods to identify and design sustainable products and systems.

Class meetings will consist of general lectures and guest lectures, often followed by a tutorial/discussion session. In addition, students must conduct and present a case study, the topic of which will be decided per student according to interest.

Homework

To complement the course content covered in the class, homework will be assigned regularly. All homework should be neat and of professional quality. The poor quality of homework will result in reduced grades. In addition to regular homework, some reading (technical papers) homework will be assigned to complement the course content. Each student will be expected to read them and provide a one-page summary of the things learned from the paper rather than a summary of the papers.

Grading

Homework and Reading Assignment	25%
Quizzes	30%
Group HW and Projects	20%
Project Report and Presentation:	25%

All homework should be returned on time on MS Teams. All materials uploaded in MS Teams should be in MS Word, MS Excel, or MS PowerPoint format. Late homework problems will earn 50% of the total grade; however, no grade will be given for missed reading assignments because the papers will be discussed in class. In addition, the two lowest quiz grades will be dropped to allow for unforeseen circumstances.

Project

It is quite common that the students do not possess their communication skills (oral and written). In this class, students will write a report in ASCE format (www.asce.org) and present the findings in the class. The purpose will be to make sure that the students learn the science of communications. A list of the projects will be developed and assigned based on students' interests.

Attendance

Students are expected to attend all lectures and laboratory sessions. Failure to attend the lectures without prior excuses will result in reduced grades.