

# Department of Civil Engineering

## **CE 5356 (19269) – Sustainable Engr Design/Elective I/Elective II/Elective III**

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

**Office:** A-221

**Class Time:** MW 6:00 to 7:20 PM

**Class Room:** Virtual

**Office Hours:** Students are always welcome

### **Text Books**

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

### **Catalogue 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. The course will focus on the areas of sustainable sites, water efficiency, energy and atmosphere, materials and resources, indoor environmental quality and innovation and design processes.

### **Course Content**

The purpose of this course is to provide a problem-based quantitative approach for sustainable design and development. Sustainability is important 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; and (c) 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. Students are required to conduct and present a case study, the topic of which will be decided per student according to interest.

## Homework

To compliment the course content covered in the class, homework will be assigned on regular basis. 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 compliment 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 summary of the papers.

## Grading

Homework and Reading Assignment	30%
Quizzes	35%
Project Report and Presentation:	35%

All homework should be returned on time. All materials handed-in should be typed and all figures should be drafted on computer. Late homework problems will earn a maximum of 50% of the total grade; however, no grade will be given for missed reading assignments because the papers will be discussed in class.

## Project

It is quite common that the students do not posse's communication skills (oral as well as written). In this class, students will write a report in ASCE format ([www.asce.org](http://www.asce.org)) and present the findings in the class. The purpose will be to make sure that the students are learning the science of communications. A list of the projects will be developed and assigned based on student's interest.

## Attendance

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