

CE 272 SYLLABUS

CIVIL AND ENVIRONMENTAL ENGINEERING ECONOMICS
FALL 2015

TIME & LOCATION

MWF 11:30am – 12:20pm EST.

Class will meet in **1307 Engineering Building** for the first day, Wednesday September 2nd. After the first day, the class format will be a blend of online and face to face learning for approximately the first five weeks, through October 2nd.

Beginning October 5th, class will meet in **008 Urban Planning and Landscape Architecture (UPLA)** building for the remainder of the semester.

INSTRUCTORS

1. Kristy Kellom (AutoCAD)
2. Syed Waqar Haider (Probability and Statistics)
3. Annick Anctil (Engineering Economics)

OFFICE HOURS & RELATED INFORMATION

Kristy M. Kellom (Ms. Kellom)

MODULE 1 AutoCAD: September 2 to October 2

Open help lab: Wednesdays 11:30-12:20 in 1307 EB.

Online office hours: Mondays and Fridays 11:30-12:20.

Online office hour logistics: Students must sign up via email and the instructor will meet with students for a ten minute block. At the scheduled appointment time, the student should go to our MSU Zoom site <https://msu.zoom.us/j/381714734>.

E-mail: kellomk@msu.edu

Syed Waqar Haider, Ph.D., P.E. (Dr. Haider)

MODULE 2 Probability & Statistics: October 5 to November 13

Office hours: Monday and Wednesday 9 to 10 am in EB 3562 or by appointment

E-mail: syedwaqa@egr.msu.edu

Annick Anctil (Dr. Anctil)

MODULE 3 Engineering Economics: November 16 to December 18

Office hours: To be determined

E-mail: anctilan@msu.edu

COURSE WEBSITE & STRUCTURE

CE 272 utilizes the University's Desire2Learn (D2L) learning management system for course delivery and communication. To access D2L, open an Internet browser and visit: <https://D2L.msu.edu> and log on with your MSU ID.

NOTE: If you have difficulty accessing the course website, please contact the registrar's office to verify that you are currently enrolled in this course.

REQUIRED TEXTS

There are no required texts for any part of this course. There will be extensive course material on PowerPoint slides and other supplementary materials (which will be made available to students through course web access i.e., D2L). Students will also be required to find materials on the Internet.

The following texts may be referenced during the course:

1. ***Up and Running with AutoCAD® 2014***. Elliot Gindis. Elsevier Science & Technology Books. E-book accessible through MSU library [FREE!], see link on D2L.
—*AutoCAD Module*
2. ***Essentials of Probability & Statistics for Engineers & Scientists 2013***. Ronald E. Walpole, Raymond Myers, Sharon L. Myers and Keying E. Ye, Pearson Education, Inc.
—*Probability & Statistics Module*
3. ***Fundamentals of Engineering Economics 2012***, 3rd Ed. Chan S. Park. Pearson Education, Inc.
—*Engineering Economics Module*

Other references will be provided as the course progresses.

COURSE MATERIALS & NEEDS

Required Software & Technologies:

1. **AutoCAD 2014**
See D2L link for free option
Recommended for Windows operating system
Note to MAC users: Though a version of AutoCAD for MAC is available, please be aware that not all functions of the software required for this class may be available on the MAC edition. Therefore, students are recommended to use the Windows platform for this course. Instructional materials will reference the Windows user interface. The exam will be administered from a Windows operating system, therefore familiarity would be to the student's advantage. Students should contact faculty with any questions or concerns.
2. **A PDF Viewer**
i.e. Adobe Reader free download, or other PDF viewing software.

COURSE DESCRIPTION

This is a required course for both civil and environmental engineering majors. While it is being offered as a “companion” course to CE 271 during the regular semesters, it is not necessary that they be taken during the same semester.

The purpose of the course is to offer civil and environmental engineering students early exposure to several tools useful for other classes and in professional practice. The course is divided into three independent modules—AutoCAD, engineering economics, and probability and statistics. Basic principles in each of these areas are introduced in this course and then they are used in subsequent courses (e.g., AutoCAD is useful in CE 271 and several other courses).

Catalogue Description: Basic operations in AutoCAD. Concepts in probability and statistics including descriptive statistics, probability distributions, two- and more-sample comparisons, and linear regression. Concepts in engineering economics including interest, net present worth, benefit-cost analysis, comparison of economic alternatives, and life-cycle costing. Restricted to applications in civil and environmental engineering.

OVERVIEW OF COURSE

There are three major modules in this course: AutoCAD, probability and statistics, and engineering economics. While mastery of the course material will not make a student an expert in any of the three areas, it will help prepare students for other courses (e.g., use AutoCAD in developing a site plan or technical drawing) and for more advanced applications in the various areas of civil and environmental engineering.

In all three modules, the emphasis is on practical application rather than theoretical development. The latter will be most apparent in the probability/statistics segment where considerable time will be spent on determining how/when to use and how to interpret statistics rather than mathematical derivations.

COURSE LEARNING OBJECTIVES

The learning objectives for this course are varied, ranging from the very general to the specific. Proficiency is demonstrated through laboratory work, class assignments, projects, and exams.

AutoCAD...

1. Create basic geometric figures using AutoCAD software.
2. Utilize drafting settings to develop precise, two-dimensional technical drawings.
3. Apply communication tools for dimensioning, drawing notes and labels.
4. Prepare layouts and apply plotting capabilities to produce accurately scaled documents.

Probability and Statistics...

1. Describe different probability distributions and their applications in civil/environmental engineering.
2. Calculate and explain basic descriptive statistics.
3. Compare the means of two or more samples and explain whether they are significantly different.

4. Develop and explain univariate and multivariate regression models.

Engineering Economics...

1. Explain basic interest concepts and their relevance in an engineering context.
2. Explain the “time value of money” and how it affects the analysis of alternatives.
3. Calculate the present, annual, and future worth of cash flow elements/streams.
4. Perform a simple net present worth analysis in the context of comparing alternatives.
5. Perform a simple benefit-cost analysis.
6. Perform a simple life-cycle cost analysis.

COURSE REQUIREMENTS, GRADING, AND OTHER STUFF

SPECIAL NOTE: In order to pass this course, a passing grade (>60%) must be achieved in each of the three modules (e.g., if a student does not pass the AutoCAD segment, the student cannot pass the course).

Course Requirements

Each student’s grade will be based on their aggregate performance in all three segments (subject to the caveat above). Grade distributions for different segments are described below. Overall, the AutoCAD segment counts for 30% of a student’s overall grade while the other two segments count for 35% each.

Grading for AutoCAD Module

Total scores on assignments, projects, quizzes and final exam will determine final grades.

Grading for Probability/Statistics and Engineering Economics

The following is the grade distribution for the other two segments (%s are of overall grade). Graded material from each of these two segments counts for 35% of a student’s overall grade:

- approximately weekly/bi-weekly quizzes: four (5.83% each) for the probability/statistics segment; three (7.78%) for the engineering economics segment;
- final examinations: separate “finals” for each segment (11.67% each)

Grading Scale

$\geq 90\% = 4.0$; ≥ 85 and $< 90\% = 3.5$; ≥ 80 and $< 85\% = 3.0$; ≥ 75 and $< 80\% = 2.5$; ≥ 70 and $< 75\% = 2.0$; ≥ 65 and $< 70\% = 1.5$; ≥ 60 and $< 65\% = 1.0$; and $< 60\% = 0.0$. Grades on examinations *may* be “curved” so that the average grade is not less than 75%.

Assignments

Assignments are due electronically by the designated time as indicated in the course schedule. Students are encouraged to work ahead. Assignments will not be graded until the designated due date. Some assignments will build throughout the semester (i.e. in order to finish an assignment, a previous assignment's completion may be required to continue). Keep this in mind and do not fall behind! Although some practice tasks are not graded, students who complete all recommended assignments perform the best on exams and become proficient for future courses and careers.

Late Work Policy

Late work will not be accepted. All assignments, projects, quizzes and exams are due by the time designated in the course schedule. Course work will not be accepted if submitted in the wrong format. If the assignment is incomplete, the student should submit whatever he/she has completed before the due date to receive partial credit. Under extenuating circumstances and with proper written documentation, faculty reserves the right to approve a make-up or extension.

Crash Assignment Policy

Since it is likely that students will experience some kind of computer problem or personal conflict during the semester, faculty provides an opportunity to make up points for ONE assignment, near the end of each module. This could be either an assignment that faculty did not receive, or an assignment that received a low score and could be improved. Crash assignments are due by the time indicated in the course schedule, to be turned in to the "Crash Assignment" dropbox online. This assignment must be titled with the student's name and the assignment number or description being submitted. Crash assignments can be any course **assignment** (EXCLUDES QUIZZES, PROJECTS AND EXAMS).

Portfolio & Back-up Files

It is the student's responsibility to keep back-up copies of all course work. Students may want records of each step of the process for his/her portfolio or reference at a later date.

Tip: Back-up ALL work at each phase of the process, and in MULTIPLE locations!

Communication & Schedule Changes

Instruction changes, schedule changes, comments, and grading information will be announced on D2L and/or via email. The most up to date course schedule will always be posted on D2L. Faculty reserves the right to make changes in the course schedule and syllabus as necessary to facilitate learning.

Grade Penalties and Changes

1. Late penalties for assignments—NO LATE WORK IS ALLOWED;
2. Penalty for cheating is failure of the course;
3. Penalty for missing an exam without prior approval of excuse—0.0 on the exam unless there are mitigating (serious and documented) circumstances; and
4. Allowances and/or adjustments may be made for improvement or degradation of performance over the course of the term.

Academic Honesty

Article 2.3.3 of the [Academic Freedom Report](#) states that "The student shares with the faculty the responsibility for maintaining the integrity of scholarship, grades, and professional standards." In addition, the Department of Civil and Environmental Engineering adheres to the policies on academic honesty as specified in General Student Regulations 1.0, Protection of Scholarship and Grades; the all-University Policy on Integrity of Scholarship and Grades; and Ordinance 17.00, Examinations. (See [Spartan Life: Student Handbook and Resource Guide](#) and/or the MSU Web site: www.msu.edu.)

Therefore, unless authorized by your instructor, you are expected to complete all course assignments, including homework, lab work, quizzes, tests and exams, without assistance from any source. You are expected to develop original work for this course; therefore, you may not

submit course work you completed for another course to satisfy the requirements for this course. Also, you are not authorized to use the www.allmsu.com Web site to complete any course work in this course. Students who violate MSU academic integrity rules may receive a penalty grade, including a failing grade on the assignment or in the course. Contact your instructor if you are unsure about the appropriateness of your course work. (See also the [Academic Integrity](#) webpage.)

Inform Your Instructor of Any Accommodations Needed

Michigan State University is committed to providing equal opportunity for participation in all programs, services and activities. If you have a documented disability and verification from the Resource Center for Persons with Disabilities (RCPD), and wish to discuss academic accommodations, please contact your instructor as soon as possible. It is the student's responsibility to provide documentation of disability to RCPD and meet with an RCPD specialist to request special accommodation *before* classes start.

Once your eligibility for an accommodation has been determined, you will be issued a verified individual services accommodation ("VISA") form. Please present this form to the instructor at the start of the term and/or two weeks prior to the accommodation date (test, project, etc). Requests received after this date may not be honored.

RCPD is located in 120 Bessey Hall, near the center of the Michigan State University campus, on the southwest corner of Farm Lane and Auditorium Road. RCPD may be contacted by phone at (517) 884-7273 (884-RCPD), or via their website www.rcpd.msu.edu.

Observing a Major Religious Holiday

A student may make up course work missed to observe a major religious holiday only if arrangements are made in advance with the instructor.

Participation in a Required Activity

To make up course work missed to participate in a required activity for another course or a university-sanctioned event, a student must provide the instructor with adequate advanced notice and a written authorization from the faculty member of the other course or from a university administrator.

Attendance

Students whose names do not appear on the official class list for this course may not attend this class.

Disruptive Behavior

Article [2.3.5](#) of the Academic Freedom Report (AFR) for students at Michigan State University states that "The student's behavior in the classroom shall be conducive to the teaching and learning process for all concerned." Article [2.3.10](#) of the AFR states that "The student has a right to scholarly relationships with faculty based on mutual trust and civility." [General Student Regulation 5.02](#) states that "no student shall . . . interfere with the functions and services of the University (for example, but not limited to, classes . . .) such that the function or service is obstructed or disrupted. Students whose conduct adversely affects the learning environment in this classroom may be subject to disciplinary action through the Student Faculty Judiciary process.

COURSE SCHEDULE: *See separate document(s) for Course Schedules