ME 2060, "Introduction to Engineering Design & Problem Solving"
2 credits; Winter Semester 2005; Call Number 15284; Material Fee $10
Prereq: BE 1010; Co-requisites: ME 2050 and PHY 2175

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Class Meeting Time: 3:00 – 4:50 pm, Section I - Wednesday, Section II - Friday
Class Meeting Room: PC lab classroom, Room 2359 Engineering
Office Hours: 4:00 - 5:00 pm, Thursday, or by arrangement.

by D.G. Newnan, J.P. Lavelle & T.G. Eschenbach

General Observations:
The text for this course is one to keep, since this subject material will be useful to you throughout your life. Knowing something about engineering economics will help you advance as an engineer. Perhaps just as importantly, knowing how to handle money, how to calculate in a rational way whether it is better to lease or buy a car, refinance a home, etc., could be very helpful to you, your family and friends. Using spreadsheets, it is possible to explore many different economic alternatives, and getting practice building complex spreadsheets and knowing how to work with them is very helpful for the practice of engineering.

This is a demanding course – you have to work as an individual mastering spreadsheets and as a member of a team on projects. Teams are assigned at random, and you may be stuck with weak teammates. To pass the course, you have to handle both individual and team activities well, and as a practicing engineer, you also will have to handle both of these types of activities, and at times, even in industry, will have to try to get the best out of teammates who do not work as hard as you. If you do not put in the time to work lots of problems, chances are you will not pass. Do not fall behind.

OVERALL ME 2060 COURSE OBJECTIVE
To provide students with experience working as a member of an engineering work team, with experience using Excel to solve engineering economics problems, including examination of economic alternatives using Excel, and with an appreciation of contemporary issues in engineering.

Specific ME 2060 Course Learning Objectives: (Letters in brackets refer to BSME Program Outcomes A - J. Numbers in brackets refer to the methods of evaluation, with 1 = Homework; 2 = Exams; 3 = Projects & Competitions; and 4 = Presentations)
Students who successfully complete ME 2060 will be able to:
1. use Excel to solve engineering economics problems and to explore economic alternatives [C, D, G; 1, 2]
2. better understand engineering and ethical issues arising in contemporary news stories involving marketing, trade or manufacturing [B, C, F; 1, 4]

Relationship of Course to BSME Program Outcomes:
Strongly contributes to the BSME Program Outcomes that successful students will:
   B) be able to communicate effectively;
   D) be able to apply computers as tools for engineering;
   G) be able to develop creative solutions to engineering problems;
   H) be able to work well as part of a team;

Contributes to the BSME Program Outcomes that successful students will:
   A) be able to understand scientific principles and apply them to the practice of engineering;
   C) possess the problem-solving skills, background, and confidence necessary to educate themselves continually throughout their careers;
   F) be able to practice engineering with ethical standards and a responsibility to society;

RESPONSIBILITY
Each individual student will be responsible for all lecture material, class participation, advanced reading assignments, homework assignments, three quizzes, a contemporary issues report, a midterm exam and a term exam. In addition, each student will be required to participate fully in team activities, including making a presentation on a contemporary issue. Students must have web access and must use Blackboard. Students who miss class may lose “Participation points”.

HOMEWORK
There will be eight homework assignments intended to guide your work. Experience shows students who do homework on time perform better on exams. The dates on which problems will be assigned will be placed on Blackboard, in Course Information. Work problems before the lectures so you can ask any questions you may have. Students are encouraged to work together on homework and to solve as many problems from the text as possible.

EXAMS
All quizzes and exams are open notes & open book. Quiz and exam dates will also be listed on the Blackboard. The quizzes and exams will be based on the homework assignments and class problems that preceded them. THERE WILL BE NO MAKE-UP QUIZZES OR EXAMS. Each student will be required to submit her/his quiz/exam work via blackboard and email (milind85@gmail.com). Also, follow a standard nomenclature for your excel files. Let your homework assignments be named “section#_hw1_fullname” and your Quizzes/Exams be named
“section#_quiz1_fullname” Email your Homework file to milind85@gmail.com before the time stated on the Homework sheet or else you might get zero points. Unless I receive your email with your quiz/exam/homework file as an attachment on time or can open your file on your disk that was submitted on time, you will get zero points.

All of your work in this course must use spreadsheet calculations based on formulas defined on your spreadsheet. NO EXCEL FINANCIAL FUNCTIONS CAN BE USED AND NO INTEREST TABLE RESULTS WILL BE ACCEPTED.

Contemporary Issues Report and Design Project Report
The Contemporary Issues Report and the Design Project Report must follow the formats as will be specified in the file 2060Formats.doc that will be given in Blackboard. They must be word processed and submitted by 3:10 pm on the dates as indicated in the Schedule of Activities. Otherwise, no points will be awarded.

Contemporary Issues Report Presentation
You must be present for presentations by all teams to be awarded any points. Presentations must use PowerPoint and follow the format as specified in the file 2060Formats.doc, that will eventually be given in Blackboard.

Participation Points
Participation points will be awarded based on contributions to class activities and attendance of classes. You may lose points if you miss a class.

CHEATING
The work on each quiz or exam must be entirely your own. Do not look at any other student’s computer terminal or work. On the first sheet of each quiz or exam file you must record your name and the statement: “I neither gave assistance to another nor received assistance from another for any portion of this work”. This exact wording is required; otherwise points will be deducted. STUDENTS WHO CHEAT DURING ANY EXAMINATION OR ON ANY REPORT ASSIGNMENT WILL BE ASSIGNED A FAILING GRADE FOR THE COURSE.

GRADING
The points are distributed as follows:

1) Quiz #1 5 pts
2) Quizzes 2 & 3 each 10 pts 20 pts
3) Home-Work 10 pts
4) Midterm Exam 25 pts
5) Term Exam 30 pts
6) Contemporary Issues Report 6 pts
7) Class Attendance & Participation 4 pts
Students who pass ME 2060 must demonstrate their ability to use Excel to perform engineering economic analysis, including evaluation of economic alternatives. To ensure this, any student who earns less than 26.4 points cumulatively on the three quizzes and the midterm exam will receive a grade of “E” in ME 2060. Moreover, they will not be allowed to participate further in team design activities. (Note that the three quizzes and the midterm exam have a total cumulative score of 44 points.)

Grades for students who earn 26.4 or more points cumulatively on the three quizzes and the midterm exam will be determined following the grade scale given below:

- 90.0 – 93.9 = A-
- 80.0 – 82.9 = B-
- 70.0 – 72.9 = C-
- 94.0 and above = A
- 83.0 – 86.9 = B
- 73.0 – 76.9 = C
- 69.9 and below = E
- 77.0 – 79.9 = C+
- 87.0 – 89.9 = B+

Policy on Withdrawal: The College of Engineering does not allow withdrawal from courses after the fifth week of classes except under exceptional circumstances. Failing of a class is not an acceptable excuse for withdrawal after the fifth week.

Policy on Deferred Grades: An “I” grade will only be given if the student is unable to complete the course because of an emergency or health problems. A grade of “I” will only be assigned if the student is not currently failing the class and if there is not a substantial quantity of work yet to be completed. An “I” grade must be made up within one year of assignment of the grade.

TEAM MEMBERSHIP: Teams will be assigned on a random basis. As students drop out or as new students come in, teams will be adjusted as required. Our target is to have 3-5 members on each team. EACH STUDENT WILL BE REQUIRED TO SUBMIT WRITTEN EVALUATIONS OF HIS/HER TEAMMATES (or lose TWO pts; email submission is encouraged). THE INSTRUCTOR WILL CONSIDER THESE PEER EVALUATIONS WHEN “PARTICIPATION” POINTS ARE AWARDED TO INDIVIDUALS.

Mechanical Engineering Department Student Conduct Statement:
It is the responsibility of each student to adhere to the principles of academic integrity. Academic integrity means that a student is honest with him/herself, fellow students, instructors, and the University in matters concerning his or her educational endeavors. Thus, a student should not falsely claim the work of another as his/her own, or misrepresent him/herself so that the measures of his/her academic performance do not reflect his/her own work or personal knowledge. In this regard, cheating will not be tolerated. Cheating includes (but is not limited to) any communication (written or oral) during examinations and sharing of work, such as using the same models or computer programs or copying work. All homework and projects must be an individual effort unless specifically noted. Therefore avoid all appearance of improper behavior! Students who witness cheating should report the incident to the instructor as soon as possible. Students are also welcome to discuss any concerns related to cheating with Dr. Ronald Gibson, Chair of Mechanical Engineering.