

Engineering I & II Syllabus

Engineering is the application of math, science and physics. In Engineering I & II you will learn about concepts common to all engineers and perform case studies as individuals and teams. Some of the case studies are as follows: mobile motor car, Rube Goldberg machine competition, emergency/homeless shelter, career investigation, ethics studies, solar cars, cardboard boats, egg drop (types of materials). Students will also compete in Engineering Expo, an event sponsored by the College of Engineering at UW. In all of the case studies students will consult with actual engineers and experts in the field of engineering as well as test the models they have made using a variety of instruments including computers. Field trips to universities and businesses and guest speakers will be utilized in the course.

Case studies in engineering are a continuation of Fundamentals of Engineering. Students will conduct case studies as teams and individuals in such areas as civil engineering, machine automation and computer control, human factors engineering (ergonomics), and energy. Students will also compete in Engineering Expo, an event sponsored by the College of Engineering at UW. In the energy case study students will construct a model car powered by solar cells. In civil engineering we will redesign the Regent/Highland/Speedway intersection to allow for safe and quick passage to and from the campus to west side areas. We will also continue to look at engineering as a career and will have field trips and guest speakers from universities and businesses.

Course Requirements

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Students will have the unique opportunity to study general engineering fundamentals while still enrolled in high school. This course will take the students through theory and practice and then into many different case studies. The majority of the content (80-90%) is group work based, as students will be venturing off into careers in college or business and industry. Homework will be limited but timelines will be adhered to as many projects in the real world have deadlines. Students will have opportunities to use computers and software with updated, relevant industry standard software.

It is recommended that students take two/three courses offered in the program previous to the engineering course. Engineering I), CAD I or CAD/CAM I. See course descriptions in the student handbook for more information.

Students are not required to participate in competitions, however they are encouraged to. Competitions include but are not limited to: Formula SAE, Supermileage, UW Engineering Expo (Robotics etc.), UWM Rube Goldberg, and Several other local events.

For course information and outlines see:
Joe Kapugia

Grading

Grading, Evaluation Policies and Procedures

Final grades will be based on the following calculations:

Lab Reports	45%
Case Studies	45%
Final Exam	10%
TOTAL	100%

Grading Scale

93 or above = A

90 - 92.9 = A-

87 - 89.9 = B+

83 - 86.9 = B

80 - 82.9 = B-

77 - 79.9 = C+

73 - 76.9 = C

70 - 72.9 = C-

67 - 69.9 = D+

63 - 66.9 = D

60 - 62.9 = D-

Below 59.9 = F

Learning is enhanced when students can cooperate, rather than compete, with each other. Therefore, grading will not be on a curve. If every student does excellent work, everyone will earn a high grade in this class. However, please note:

ONE make-up exam will be scheduled.

Assignments turned in late will result in the maximum grade attainable reduced by one letter grade for every day late.

Rules

Students must bring a pencil or pen to class daily. Points may be taken off if the student is not properly prepared for class.

Class will begin when the tardy bell rings and end when the instructor dismisses the class. **THE CLASS WILL NEVER BE DISMISSED BY THE BELL.**

Tardiness will result in points taken off student's daily grades. Students must be in the room when the tardy bell rings.

Use of another student's data, drawings or other work will be considered cheating and will be handled according to the rules in the student handbook. Students may discuss and share different ideas.

Students may **NOT** bring programs into the labs. Any programs brought into the lab without permission will become property of the school.

All make-up work must be done before and/or after school. **ALL** absences must be made up within three school days.

Lab report grading system is 20 points per day, 100 points per week. Lab reports are graded daily. Weekly grades are averaged together for the quarter grade. **LAB REPORTS ARE NOT TO LEAVE THE ROOM!!!**

Lab reports are to be picked up from the front of the room as the student enters and turned in at the end of class. If a student does not pick up the lab report upon entry, they may be marked tardy and lose points.

Any student found mistreating the equipment or tampering with the computer settings will be removed from the class.

NO FOOD, DRINKS OR GUM IS ALLOWED IN CLASS.

Profanity will not be tolerated.

Students will be held financially responsible for all items lost or intentionally damaged.

Report any accidents immediately.

It is the student's responsibility to take care of personal business before or after class.

Emergencies are very rare.

Students must remain at their workstations. Leaving the workstation and socializing with other students will result in points taken off the daily grade for each occurrence.

Negative point totals may also exceed the total available points for the day.

All equipment must be returned to its proper place, all chairs and stools returned to their proper places and students must all be at their workstations before the class is dismissed by the instructor.

Teamwork

A first step toward effective group functioning is establishment of agreed-upon ground rules. Each team will develop a set of behavioral guidelines and will consider the consequences for members who do not follow them. Make certain that all members of the group have a copy of your ground rules and consequences. Some guidelines that have served other groups are listed below:

Come on time to every class.

Notify other group members and the instructor in advance (when possible) if you must miss a class.

Freely share the information you gather outside of class with other group members.

Use class time wisely. (It is not appropriate to discuss sports events, dating woes, or your other courses.)

Solicit and value contributions from every group member.

Group members who disrupt the group's function by ignoring its guidelines can be confronted by the other members and penalized by peer evaluation.

Advice for success

Students who completed this course last year offered the following suggestions for doing well in this course:

Keep up with reading assignments.

Make sure everyone in group contributes.

Get involved in class discussions.

Take advantage of working in groups.

Start project work early.

Develop timelines for case studies

Research your company extensively.

Test your ideas extensively before they are due

Have an open mind and apply what you learn.

Use these wise tips

Know where you are headed and reflect upon your progress.

Ask questions. Cultivate an attitude of curiosity.

Practice using your knowledge. Seek ways to apply what you are learning even when you are not "studying."

Take charge of your own learning. Do more than is expected. Request help before a situation becomes a crisis. Maintain a willingness to persevere. Avoid all academically dishonest practices (described in the Student Handbook).

Eat well, exercise regularly, and get adequate sleep! Enough said.