Course Preliminaries

The Course

Lectures, Speakers, Labs and Discussions
- 110 Rogers Hall,
- 2nd Period, Tuesday and Thursday

Office Hours

107 Rogers Hall
- M W F, 10:30 am – 12:00 pm
- T R, 9:30 am – 12:00 pm
- Or by appointment
E-mail: rscholtz@ufl.edu

Course Internet Site

www.abe.ufl.edu/~rscholtz/Course-07.html
- Syllabus
- Course Schedule
- Presentation Notes and Handouts
- Assignments and Projects

Password for Files: 3042abed
Course Objectives

- Develop specific design objectives and criteria from poorly defined needs and descriptions.
- Gather and evaluate design information.
- Conceptualize designs to meet objectives and criteria.
- Evaluate designs.

Course Objectives

- Develop and document designs, work in teams, manage design projects and communicate design needs and accomplishments with clients, peers, suppliers, and managers.

Objectives

- Act like an engineer.
- Feel like an engineer.
- Think like an engineer.
- Be an engineer.

Objectives

- Take the tools learned (in your engineering and science courses) and apply them to the design process.
- Lectures will cover materials in the text as well as outside sources.
- Pay attention and maintain your notes as needed.
- Use the "3-Times Rule."
  - 4 credits ⇒ 10 hours per week outside.
- Students are responsible for all announced course changes.
- Read + Work + Pay Attention + Effort = Success

Grading Policy

- 65% - Design Deliverables.
  - There will be four design projects throughout the semester, worth 5%, 10%, 20% and 25%. Details will be specified at a later date.
- 30% - Executive Summaries and Homework Assignments.
  - There will be five to eight field trip/guest speaker executive summaries, equally weighted. Other assignments will be periodically assigned as well.
- 5% - Student Self and Team Assessments.
  - Students will be required to maintain digital copies of all materials for their digital portfolio. Students will also periodically set personal course goals and will periodically fill out self-evaluation forms monitoring their performance.

Grading Scale

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<th>Grade</th>
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<tr>
<td>A</td>
<td>91-100%</td>
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<td>A-</td>
<td>89-90%</td>
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<td>B+</td>
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Make-up Policy

- Arrangements to make-up any and all deliverables must be done prior to the due date, unless an unforeseeable event has occurred. Those instances will be reviewed on a case by case basis.

An Introduction to Engineering

What Is an Engineer?

“The creative application of scientific principles to design or develop structures, machines, apparatus, or manufacturing processes, or works utilizing them singly or in combination; or to construct or operate the same with full cognizance of their design; or to forecast their behavior under specific operating conditions; all as respects an intended function, economics of operation and safety to life and property.”

- AECPD (ABET)

What Is an Engineer?

Engineering is the application of science and mathematics toward the goal of solving problems. Such as improving: how we travel, how we communicate, our environment, how our society will grow, how we will thrive.

“The scientist merely explores that which exists, while the engineer creates what has never existed before.”

- Theodore von Kármán, c.a. 1957

“The idea of design - of making something that has not existed before - is central to engineering.”

- Henry Petroski, To Engineer is Human
Engineer as a Composite

Creativity

Ethical Responsibility

Foundational Knowledge

Resource Utilization

Communication and Network

Guiding Principles

Engineers uphold and advance the integrity, honor and dignity of the engineering profession by:

- using their knowledge and skill for the enhancement of human welfare;
- being honest and impartial, and serving with fidelity the public, their employers and clients;

Guiding Principles (cont.)

- striving to increase the competence and prestige of the engineering profession; and
- supporting the professional and technical societies of their disciplines.

Fundamental Cannons

Engineers shall hold paramount the safety, health and welfare of the public in the performance of their professional duties.

Engineers shall perform services only in the areas of their competence.

Engineers shall issue public statements only in an objective and truthful manner.

Fundamental Cannons (cont)

Engineers shall act in professional matters for each employer or client as faithful agents or trustees, and shall avoid conflicts of interest.

Engineers shall build their professional reputation on the merit of their services and shall not compete unfairly with others.

Fundamental Cannons (cont)

Engineers shall act in such a manner as to uphold and enhance the honor, integrity and dignity of the profession.

Engineers shall continue their professional development throughout their careers and shall provide opportunities for the professional development of those engineers under their supervision.
Engineering is efficient procrastination.

On average, only about 20% of the necessary tasks are completed. This leaves 20% of your time to complete 80% of the work. Many times this is unavoidable, due to administrative and bureaucratic responsibilities. Thus time management becomes critical.

Accounting for your time is a key step toward optimizing your time. Many agencies and firms use time logs as an employee fitness measure. Accounting for your time will allow you to determine how effect your time is being spent.

To-Do lists become critical as system complexity increases, and/or the demand for your time increases. Triage your list. CPM/PERT Analysis made be required (later discussion).

Identify your available time. Make your schedule as routine as possible. Schedule your priority tasks. Schedule your administrative tasks. Add in time for contingencies. Schedule remaining time to meet remaining tasks, and tasks that meet personal goals.
Avoid excessive procrastination.
- Recognize when you are procrastinating.
- Determine why.
- Work it out.