Discussion of Ethics
in
Civil and Architectural Engineering Department
Illinois Institute of Technology
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Background Information

Programs in Civil and Architectural Engineering Department at IIT include:

- Civil Engineering (BS, MS, PhD)
- Architectural Engineering (BS, MS)
- Engineering Management (BS)
- Engineering Graphics (certificate program)

Concentration areas:

- Civil Engineering: Structural design; construction engineering and management; geotechnical engineering; transportation engineering
Background information (continued)

**Architectural Engineering**: Building design; building energy design (heating, ventilation air conditioning); acoustic and lighting design; construction engineering and management

**Engineering Management**: finances; environmental engineering; construction management; transportation planning and management; manufacturing

**Engineering Graphics**: Computer-aided design

**Statistical Data:**

- UG students: 90  
  Graduate students: 65
- Faculty: 12
Background information (continued)

Five faculty members have actively participated in workshops/seminars organized by IIT’s Center for the Study of Ethics since 1991.

Ethics have been included in courses on a regular basis since 1992.

The purpose is to introduce ethics to students and increase awareness among students regarding the responsibilities of civil and architectural engineers to the safety of the public.
Importance in Civil and Architectural Engineering Courses

Courses in civil and architectural engineering involve design of facilities and/or management of the construction process.

Objectives of design in a facility are safety and economy:

- Safety: covers strength requirements, stability, and serviceability
- Economy: considers minimizing cost without compromising safety
Discussions on ethics emphasize on:

- Responsibilities of the engineer in assuring public safety while making design economical
- Following the code of ethics by the professional society
- Following a well-established set of procedures for design and safety calculations
- Exercising professionalism when conducting design calculations
A major component of professionalism in preparing design calculation document is to follow quality assurance procedures. Elements of QA procedures emphasized in design courses are:

- Preparing a legible and complete design document
- Including introduction, specification data, clear information on standards used, surveys conducted and methods employed in design document
- Conducting and documenting verifications for new methods and new software used
- Preparing design document using a three-level process: preparation, verification and approval
QA Procedures (Continued)

- Providing adequate background information for future use and modification of the design document
- Providing adequate information on alternate methods, software and standards that may be applicable.
- Acknowledging the work of others
Ethics discussion also emphasizes on:

• Professional licensing and state regulations on signing documents and misuse of titles
• Proper coordination between design engineers, fabricators, contractors and inspectors
• Proper execution of “change orders”
• Proper handling of mistakes discovered after the completion of the design
Format of Instruction

Open discussions (about 2-3 lecture hours)

Reading assignments (case studies, journal articles and web site information)

Problem-solving sessions

Discussion of the code of ethics by American Society of Civil Engineers (ASCE) and other societies

Lecture presentation by members of the Center for the Study of Ethics (IPRO classes)

Students’ case studies and projects
Resources

1. IIT’s Ethics Center

2. Journal articles
   - ASCE News
   - Structural Engineer
   - ENR
   - ASCE Journal of Professional Issues

3. Web Sites
   - Earthquake Engineering Research Institute
   - ASCE
List of Courses

1. Structural Design Courses
2. Interprofessional (IPRO) design courses
3. Construction Planning and Scheduling
5. Architectural Engineering (Building & Energy Design)
6. Transportation Planning
7. Systems Engineering