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Connecting Students with Industry Professionals and IEEE Leaders

IEEE Student Ethics Competition (SEC) IEEE Region 1 **Guidelines and Requirements**

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Introduction

The IEEE Student Ethics Competition is sponsored by the IEEE Ethics and Member Conduct Committee (EMCC). It was developed for use at IEEE student events to encourage the study and awareness of professional ethics by IEEE Student and Graduate Student Members. The competition includes a presentation and defense of a case analysis by teams of students. Specific objectives of the competition program are:

- 1) To foster familiarity with the IEEE Code of Ethics and ethical concepts,
- 2) To promote a model for discussing and analyzing ethical questions, and
- 3) To provide experience in applying ethical concepts to typical professional situations.

The use of the competition as part of curricula assignments or extra credit activities is encouraged.

Overview of the Student Ethics Competition

Activities

Participants will be tested on their knowledge and application of the IEEE Code of Ethics as demonstrated by student analysis and findings resulting from a study of a theoretical ethics case.

Materials provided by the Ethics & Member Conduct Committee

The EMCC provides the following:

- ❖ Guidelines for structuring a competition are all provided in the SEC package. Competition Guidelines, which includes: Overview of competition, Judging Forms, Presentation Guidelines, IEEE Code of Ethics and related Bylaw, competition Resources (including brief Ethics Glossary), Student Analysis Format, and Sample Case.
- ❖ Posters and/or CD-ROM with customizable poster files for publicity of the event.

Additionally, for competitions that receive funding approval through the EMCC, the following is provided:

- ❖ Access to an EMCC case study for use at event. The competition organizer may develop their own case study but review by the EMCC of any self-writing case study is required.
- ❖ Funding for prizes.
- ❖ Certificates for winning team signed by the EMCC Chair and the IEEE President.
- ❖ Certificate of participation for all participants signed by the EMCC Chair and the IEEE

President. Certificates of participation will be sent to the competition organizer prior to the competition in order to be presented at the conclusion of the event.

Participants

Based on time considerations, see (“organization of competition”), it is recommended that between four and six teams of two or three IEEE Student or Graduate Student members each be selected for the competition. For events receiving funding by the EMCC, the individual team members must belong to the same IEEE Student Branch as the prize money is distributed to the winning Student Branch and not to individuals.

Eligibility

Participants must be IEEE Student or Graduate Student Members in good standing.

Location of Competition

It is recommended that the competition be part of a major IEEE Student or Graduate Student event that attracts a cross-section of IEEE Student and Graduate Student Members. The competition must be a visible part of the event's public/advance agenda/program.

Prizes

Based on the judging criteria, the competition judges will determine winner and runner-up winning teams. Prize amounts are based on the event type described in the “funding” section below. Upon completion of the event, the competition organizer shall notify the EMCC of the winning teams so that the prize money can be disbursed.

Certificates of participation are available to all participants.

All certificates will be signed by the President of the IEEE and by the Chair of the IEEE Ethics and Member Conduct Committee.

Funding

The IEEE Ethics and Member Conduct Committee provides funding for prizes for up to ten events each year. Each IEEE Region is eligible to receive funding every two years for competitions held at the Region level.

Events, if approved by the EMCC, may be funded as follows:

An event involving two or more IEEE Student Branches is provided \$600 US (\$400 first place & \$200 runner up)

An event involving a single IEEE Student Branch is provided \$300 US.

An event involving teams consisting of participants from multiple IEEE Student Branches may receive funding up to \$800 US. Teams may consist of a maximum of 4 participants, each from a different IEEE Student Branch. Distribution of funds shall be (\$125 US for each first place participant’s Student Branch and \$75 US for each runner up participant’s Student Branch.

All funding is to be used for future activities of those Student Branches.

Judges

Competition organizers will select no less than three, but no more than six judges. Judges should be selected based upon their knowledge of ethics.

Selection of Winners

Judges will evaluate participants based on the following:

1. Analysis of a hypothetical case study presented orally (70%)
 2. Question and answers with the judges in defense of the case study conclusions (30%)
- Judging Forms for both two and three member teams are attached.

Each judge will rank the teams using the attached Judging Forms. The points awarded by the judges will be tallied and the winners determined by the totaled scores. Ties will be resolved by majority vote of the judges. All other Judge decisions will be by majority vote and will be final with regard to adherence to rules, disputes, team eligibility, disqualifications, and other competition conduct.

Notification of Winners

Winners will be notified at the Competition Award Ceremony. A list of winners will be made available on the IEEE Ethics & Member Conduct Committee webpage based on official notice to the IEEE Ethics & Member Conduct Committee at email ethics@ieee.org, or mail, IEEE, 445 Hoes Lane, Piscataway, NJ 08854, Attention: IEEE Ethics & Member Conduct Committee.

Hosting a Student Ethics Competition

Individuals wishing to host a competition should first contact their Student Branch Chair, or Regional Student Branch Committee Chair to coordinate the activity.

Once a decision to host a competition has been made, the competition organizer must provide the following information to the EMCC in order to be considered for funding:

- ❖ Proposed date
- ❖ Proposed location
- ❖ Type of event the competition at which the competition will be held (ie. Student Branch Congress, Student Activities Committee meeting, etc.)
- ❖ Approximate number of attendees at event
- ❖ Participants names, IEEE member number and their student branches
- ❖ List of judges
- ❖ Indication if a case study is needed. The case study will be released to the competition organizer only upon approval of the event. If the competition organizer has developed the case study it must be provided to the EMCC for review. In this instance the organizer should also indicate whether the EMCC may use the case study for other competitions in the future.

Such requests for funding should be received at least 45 days in advance in order to be considered.

Responsibility of Competition Organizers

1. Set date/location for competition
2. Provide competition details to EMCC if requesting funding. (refer to “Hosting a Student Ethics Competition” section above)
3. Organize & advertise the competition
4. Select judges
5. Notify the EMCC of competition results

For Further Information

Competition information is available at (www.ieee.org/about/ethics/competition.html).

For questions contact the IEEE Ethics & Member Conduct Committee at ethics@ieee.org

Region 1 Student Activities Chair

Rob Reilly

reilly@media.mit.edu

Organization of Competition

Competition Length

As a guideline, an average competition should take approximately four hours total time. The competition should not be broken with meal or other unsupervised breaks to assure that contestants do not have an opportunity to discuss their decision outside of the group and time allocation. Once teams have presented their decision for judging, they may join the audience for further presentations. Teams which have not yet made their presentation must be isolated from the presentation venue during presentations of other teams.

Registration – Distribution of Competition Case and Draw for Speaking Order

Upon arrival, teams should register with the competition organizer. Once all teams have registered they will draw for speaking order. The competition organizer will then distribute the competition case study when the teams have all assembled and are ready to start the competition.

Materials and Sample Cases Provided Prior to the competition

The competition materials and case studies are provided to the organizer, by the EMCC, prior to the competition. The organizer should distribute the materials, except for the competition's case study, in advance to all participants.

Preparation of Presentation

Two hours is the recommended time for teams to prepare their presentations. The teams are limited to written competition material distributed at the beginning of the competition, i.e. no extra or outside resources. Teams will work in isolated teams and will require tools to develop presentation materials, for example MS Power Point and CD burning or memory stick capabilities.

Preparation by Judges

While teams prepare their presentations, judges will work together to set case expectations and Q&A Procedure.

Collect CDs and Sequester Teams

After two hours, the teams will save their presentations to a CD. The CDs will be collected and the teams will continue to be sequestered.

Presentations sequence

A random method, or draw from a hat, of determining presentation sequence is recommended.

Open Session for Presentations and Defense of Case Analyses

The teams will present their case recommendations and decisions according to the speaking order. Each team shall have 20 minutes for their analysis according to the following breakdown:

- 8 to 12-minute team presentation
- 5 minute judge Q&A and team defenses
- 3 minutes for completing judging forms

Close Competition, Count Ballots, and Tabulate Results

After all teams have presented, the competition will be closed, ballots counted and results tabulated.

Present Participation Certificates, Announce Results, and Present Awards

Participation certificates can be awarded at the competition site. However, it is recommended that the certificates for the winner and runner-up teams be awarded at a central or plenary activity of the Regional event.

IEEE STUDENT ETHICS COMPETITION JUDGING FORM (2 Members Team Option)

CATEGORIES	SCORES
DEDUCTIONS	
Time Adherence (deduction of 5 points for every 30 seconds outside of time limits) (Timing Lights or Signals at 8, 10, and 12 minute points)	<input style="width: 80px; height: 25px;" type="text"/>
Lack of significant involvement of all team members in presentation (10 points maximum deduction)	<input style="width: 80px; height: 25px;" type="text"/>
TEAM PRESENTATION (70 points)	<input style="width: 80px; height: 25px;" type="text"/>
Case Facts – restatement of relevant facts (5 points)	<input style="width: 80px; height: 25px;" type="text"/>
Question(s) – summary of ethical questions (10 points)	<input style="width: 80px; height: 25px;" type="text"/>
References – identification of relevant sections from IEEE code (5 points)	<input style="width: 80px; height: 25px;" type="text"/>
Discussion – complete analysis of case with logic/reasons (20 points)	<input style="width: 80px; height: 25px;" type="text"/>
Organization and Clear Conclusion – (5 points)	<input style="width: 80px; height: 25px;" type="text"/>
Knowledge and Mastery of Content – (5 points)	<input style="width: 80px; height: 25px;" type="text"/>
Communication Effectiveness – delivery and PowerPoint quality (includes terminology, appearance, voice, physical, use of visuals, etc.)	<input style="width: 80px; height: 25px;" type="text"/>
Team Member #1 (10 points)	<input style="width: 80px; height: 25px;" type="text"/>
Team Member #2 (10 points)	<input style="width: 80px; height: 25px;" type="text"/>
ORAL DEFENSE (30 points)	<input style="width: 80px; height: 25px;" type="text"/>
Team Member #1 (15 points)	<input style="width: 80px; height: 25px;" type="text"/>
Team Member #2 (15 points)	<input style="width: 80px; height: 25px;" type="text"/>
TOTAL SCORE (expressed as a percentage of 100)	<input style="width: 120px; height: 25px;" type="text"/>

NAMES OF TEAM MEMBERS

NAME OF JUDGE

SIGNATURE OF JUDGE

TEAM RANK (Circle Choice)

- | | | |
|-------------------|-------------------|-------------------|
| First (5 points) | Second (4 points) | Third (3 points) |
| Fourth (2 points) | Fifth (1 point) | Other (No points) |

TEAM POINTS

Each judge will rank the teams and award 5 points to first, 4 points to second, 3 points to third, 2 points to fourth, and 1 point to fifth. The judge’s points awarded will be tallied and the winners determined by the scores. Ties will be resolved by majority vote of the judges. All questions of eligibility, adherence to rules, etc. will be resolved by majority vote of the judges.

IEEE STUDENT ETHICS COMPETITION JUDGING FORM (3 Members Team Option)

CATEGORIES	SCORES
DEDUCTIONS	
Time Adherence (deduction of 5 points for every 30 seconds outside of time limits) (Timing Lights or Signals at 8, 10, and 12 minute points)	<input style="width: 80px; height: 25px;" type="text"/>
Lack of significant involvement of all team members in presentation (10 points maximum deduction)	<input style="width: 80px; height: 25px;" type="text"/>
TEAM PRESENTATION (70 points)	<input style="width: 80px; height: 25px;" type="text"/>
Case Facts – restatement of relevant facts (5 points)	<input style="width: 80px; height: 25px;" type="text"/>
Question(s) – summary of ethical questions (10 points)	<input style="width: 80px; height: 25px;" type="text"/>
References – identification of relevant sections from IEEE code (5 points)	<input style="width: 80px; height: 25px;" type="text"/>
Discussion – complete analysis of case with logic/reasons (20 points)	<input style="width: 80px; height: 25px;" type="text"/>
Organization and Clear Conclusion – (5 points)	<input style="width: 80px; height: 25px;" type="text"/>
Knowledge and Mastery of Content – (5 points)	<input style="width: 80px; height: 25px;" type="text"/>
Communication Effectiveness – delivery and PowerPoint quality (includes terminology, appearance, voice, physical, use of visuals, etc.)	<input style="width: 80px; height: 25px;" type="text"/>
Team Member #1 with summarizing role (8 points)	<input style="width: 80px; height: 25px;" type="text"/>
Team Member #2 (6 points)	<input style="width: 80px; height: 25px;" type="text"/>
Team Member #3 (6 points)	<input style="width: 80px; height: 25px;" type="text"/>
ORAL DEFENSE (30 points)	<input style="width: 80px; height: 25px;" type="text"/>
Team Member #1 (10 points)	<input style="width: 80px; height: 25px;" type="text"/>
Team Member #2 (10 points)	<input style="width: 80px; height: 25px;" type="text"/>
Team Member #3 (10 points)	<input style="width: 80px; height: 25px;" type="text"/>
TOTAL SCORE (expressed as a percentage of 100)	<input style="width: 120px; height: 25px;" type="text"/>

NAMES OF TEAM MEMBERS

NAME OF JUDGE

SIGNATURE OF JUDGE

TEAM RANK (Circle Choice)

- | | | |
|-------------------|-------------------|-------------------|
| First (5 points) | Second (4 points) | Third (3 points) |
| Fourth (2 points) | Fifth (1 point) | Other (No points) |

TEAM POINTS

Each judge will rank the teams and award 5 points to first, 4 points to second, 3 points to third, 2

points to fourth, and 1 point to fifth. The judge's points awarded will be tallied and the winners determined by the scores. Ties will be resolved by majority vote of the judges. All questions of eligibility, adherence to rules, etc. will be resolved by majority vote of the judges.

IEEE STUDENT ETHICS COMPETITION PRESENTATION GUIDELINE

- I **Purpose:** To present and defend an analysis of a situation in professional ethics.
- II **Topic:** A hypothetical case generally dealing with (1) Public Safety and Welfare, (2) Conflict of Interest, (3) Engineering Practice, or (4) Research Ethics. The selected case will have two or more ethical questions or components.
- III **Preparation:**
- A. Three hours to analyze a selected case and prepare a PowerPoint presentation (access will be provided to a computer with no internet connection)
 - B. Collaboration is limited to members of individual teams.
 - C. Resources are limited to written competition materials. (Internet access, books, etc. are not allowed)
 - D. All teams will receive the same case.
 - E. Teams will not be allowed to collaborate, practice, modify presentation, etc. after the CDs are collected. Teams may observe other presentations after their presentation.
- IV **Requirements:**
- A. PowerPoint presentation with significant speaking involvement of all team members
 - B. Presentation Time 8-12 minutes
 - C. The order of presentation among the teams will be randomly chosen.
 - D. Required Components (see example case studies)
 - Case Facts – restatement of relevant facts
 - Question(s) – summary of ethical questions
 - References – identification of relevant sections from IEEE code
 - Discussion – analysis of case. The analysis of the case should be performed using the IEEE Code of Ethics.
 - Conclusion – position statement on each of the identified ethical questions and recommendation for action
- VI **Oral Defense:**
- A. The judges will ask questions relating to the selected case and the presented analysis.
 - B. Each team member must respond to at least one question.
 - C. Time for the defense period will be approximately 5 minutes.
- V **Comments:**
- A. Timing lights or other indications will be provided.

Institute of Electrical and Electronics Engineers (IEEE) Code of Ethics

Approved by the IEEE Board of Directors, February 2006

www.ieee.org/about/whatis/code.html

We, the members of the IEEE, in recognition of the importance of our technologies in affecting the quality of life throughout the world, and in accepting a personal obligation to our profession, its members and the communities we serve, do hereby commit ourselves to the highest ethical and professional conduct and agree:

1. to accept responsibility in making decisions consistent with the safety, health and welfare of the public, and to disclose promptly factors that might endanger the public or the environment;
2. to avoid real or perceived conflicts of interest whenever possible, and to disclose them to affected parties when they do exist;
3. to be honest and realistic in stating claims or estimates based on available data;
4. to reject bribery in all its forms;
5. to improve the understanding of technology, its appropriate application, and potential consequences;
6. to maintain and improve our technical competence and to undertake technological tasks for others only if qualified by training or experience, or after full disclosure of pertinent limitations;
7. to seek, accept, and offer honest criticism of technical work, to acknowledge and correct errors, and to credit properly the contributions of others;
8. to treat fairly all persons regardless of such factors as race, religion, gender, disability, age, or national origin;
9. to avoid injuring others, their property, reputation, or employment by false or malicious action;
10. to assist colleagues and co-workers in their professional development and to support them in following this code of ethics.

IEEE Bylaws I-110.4. Member Discipline and Support – Requests for Support

www.ieee.org/bylaws

The IEEE may offer support to engineers and scientists involved in matters of ethical principle that stem in whole or in part from adherence to the principles embodied in the IEEE Code of Ethics, and that can jeopardize a person's livelihood, can compromise the discharge of the person's professional responsibilities, or that can be detrimental to the interests of IEEE or of the engineering profession. All requests for support containing allegations against persons not members of IEEE or against employers or others, requests for advice, and matters of information considered to be relevant to the ethical principles or ethical conduct supported by IEEE shall be submitted initially to the Ethics and Member Conduct Committee. Requests for support shall not include requests that the Ethics and Member Conduct Committee support a member who is the subject of a complaint as set forth in Bylaw I-110.2. IEEE support of persons requesting intervention or amicus curiae participation in legal proceedings shall be limited to issues of ethical principle.

The Ethics and Member Conduct Committee, following a preliminary investigation of any requests for support received, shall submit a report to the Executive Committee, which shall include findings and recommendations for consideration by the Executive Committee. The Executive Committee may, if it deems it appropriate to do so, appoint an advisory board to assist it in considering such report. On the basis of information available, the Executive Committee may thereafter offer support to the person making the request as appropriate to the circumstances and consistent with Sections 7.9 and 7.10 of the current IEEE Policies. The Executive Committee shall make the final decision as to supporting the person, unless the Executive Committee or the Board of Directors determines that the Board of Directors should make such final decision.

The Board of Directors, or the Executive Committee upon approval of the Board of Directors, may publish findings, opinions, or comments in support of the person and take such further action as may be in the interests of that person, the IEEE, or the engineering profession.

Guidelines for Engineers Dissenting on Ethical Grounds

IEEE Ethics Committee 11/11/96

Used with permission from the IEEE

INTRODUCTION

The goal of these guidelines is to provide general advice to engineers, including engineering managers, who find themselves in conflicts with management over matters with ethical implications. Much of this advice is pertinent to more general conflicts within organizations. For example, it is not unusual in technical organizations for there to be hard fought battles regarding purely technical decisions that do not necessarily have any ethical implications--but do have impacts on the probabilities of success of products. The assumption here is that the engineer's objective is to prevent some serious harm, while minimizing career damage.

Many ethics related disputes are caused by attempts to satisfy irreconcilable constraints. For example, suppose it is impossible to test a product adequately in time to meet a delivery date. Missing the delivery date constitutes a highly visible failure, with clearly defined penalties. There may be no obvious indication that an important set of tests has been omitted, even if this leads to a substantial increase in the probability of a life threatening system failure. Under such conditions, there is a temptation to meet the deadline by skipping or shortening the tests. Such decisions might or might not be in accordance with company policy. If not, then an engineer or manager objecting on ethical grounds usually has an easier, but usually not easy, problem. The chances of resolving the problem within the organization may be quite good. If the decision is consistent with the views of upper management, then the problem is far more serious for the dissenter. The following guidelines, based on the experiences of many people, are designed to maximize the chances of a favorable outcome for the ethically concerned manager or engineer.

1. ESTABLISH A CLEAR TECHNICAL FOUNDATION

One should check out the alleged facts and technical arguments as thoroughly as possible. If feasible, get the advice of colleagues that you respect. Carefully consider counter-arguments made by others. A good way to ensure that you understand someone else's position, is to restate it to the satisfaction of that person. At any stage, if convinced that the other person's arguments are valid, do not hesitate to change your position accordingly.

This does NOT mean that you must be able to validate your position with near mathematical certainty. This is seldom possible in the real world. In most engineering work, we must operate with incomplete information and make reasonable engineering judgments. For example, the engineers in the Challenger case could not PROVE that a launch would lead to a disaster. But, in such a situation it was sufficient to show that the likelihood of failure of the O-ring joints was clearly too great with respect to established safety standards. The burden was on the other side to justify the launch--a burden that was not met.

2. KEEP YOUR ARGUMENTS ON A HIGH PROFESSIONAL PLANE, AS IMPERSONAL AND OBJECTIVE AS POSSIBLE, AVOIDING EXTRANEIOUS ISSUES AND EMOTIONAL OUTBURSTS

For example, do not mix personal grievances into an argument about whether further testing is necessary for some critical subsystem. Keep calm and avoid impugning the motives of an opponent. (Of course, there might be a situation in which the central issue is that an incompetent person has been given critical responsibilities. In that case, it may be necessary to attack that person's qualifications. But this should be done without malice.) Try to structure the situation so that accepting your position will involve as little embarrassment as possible to those being asked to change a decision. For example, you might be able to allow a manager to take credit for realizing that a course reversal was called for. Avoid overstating your case. Your credibility can be seriously undermined by exaggerated, invalid figures--even on matters not central to the main issue.

If the matter turns into a serious conflict, efforts will be made to portray you as some sort of crackpot. Avoid behavior that could be used to support such an attack. In both written and oral arguments be cool, clear, concise and accurate. At all times behave as a competent, ethical professional.

3. TRY TO CATCH PROBLEMS EARLY, AND KEEP THE ARGUMENT AT THE LOWEST MANAGERIAL LEVEL POSSIBLE

Calling attention to a problem at an early stage makes a satisfactory solution much more likely. As time goes on, personal commitments to a particular course of action become deeper, and making changes becomes increasingly expensive. It is always less costly to resolve the dispute at the lowest organizational level possible. Move up the chain of command only when it is clear that this is necessary.

4. BEFORE GOING OUT ON A LIMB, MAKE SURE THAT THE ISSUE IS SUFFICIENTLY IMPORTANT

If a situation reaches the point where further protest may be costly, consider whether the stakes are sufficiently high. For example, if the issue involves only financial risks for the employer, then, if managers are acting unreasonably, it is probably not worth risking your career.

5. USE ORGANIZATIONAL DISPUTE RESOLUTION MECHANISMS

Good organizations have procedures, not always formal, for resolving disputes. After having exhausted informal efforts to persuade your manager, then you must consider using these mechanisms. Since this will almost certainly damage relations with your manager, this step should be taken only after a careful review along the lines discussed in guidelines 1 and 2. If you have an ally higher up in the management chain, you might appeal to that person for advice and possibly to intervene as a mediator.

If your organization lacks such a dispute resolution procedure, consider championing the creation of one. This could be invaluable in minimizing future problems.

6. KEEP RECORDS AND COLLECT PAPER

As soon as you realize that you are getting into a situation that may become serious, you should initiate a log, recording, with times and dates, the various steps that you take (e.g., conversations, email messages, etc.) Keep copies of pertinent documents or computer files at home, or in the office of a trusted friend--to guard against the possibility of a sudden discharge and sealing off of your office. But be careful not to violate any laws!

7. RESIGNING

If efforts to resolve the conflict within your organization fail, then a decision must be made as to whether to go further. It should be realized that there will almost certainly be a significant personal cost involved if you proceed. It is very unlikely that you would be able to remain with the organization, unless your job is governmental in nature, protected by civil service regulations or the like. One obvious choice is to resign. The advantages are: (1) This adds credibility to your position--makes it obvious you are a serious person. (2) Arguments that you are being disloyal to your employer are disarmed. (3) Since you are likely to be fired, resigning may look better on your record.

The drawbacks are: (1) Once you are gone, it may be easier for the organization to ignore the issues you raised, as others in the organization may be unwilling to carry on the fight. (2) The right to dissent from within the organization may be one of the points you wish to make. (3) You might thereby lose pension rights, unemployment compensation, and the right to sue for improper discharge.

It would be wise to consult an attorney before making this decision.

8. ANONYMITY

In some situations, engineers may see serious harm being done within their organizations, but recognize that publicly calling attention to it may cause personal repercussions beyond what they are willing to accept. It might be possible to report the problem anonymously to others who may be able to take action, e.g. a regulatory agency, a senator, or a reporter. One problem is that an anonymous report may not be taken seriously. Providing enough information to make the report more credible may make it easy for the organization to identify its source. Being exposed as a purveyor of an anonymous report may be even more damaging to the engineer than the effect of openly making the report would have been. A reporter might distort the facts to make the case more "newsworthy". Nevertheless, this route is sometimes taken in preference to doing nothing at all. In such a case, one should be particularly careful not to malign any individuals and one should convey in the message means for verifying the claims made.

9. OUTSIDE RESOURCES

If, after the failure of internal conflict resolution measures, you decide to take the matter outside the organization, whether or not you decide to resign, care must be taken in choosing where to go. In many cases, an obvious place is a cognizant regulatory or law enforcement agency. Other possibilities include Members of Congress (from one's own district or state, or the head of a relevant committee), state or local government officials or legislators, or public interest organizations. Of course some combination of these might be chosen. Although it is usually not a good idea to take one's case directly to the news media, they generally become involved eventually, usually in reporting actions taken by whatever entity the engineer has contacted. One must take special pains to be accurate and clear when dealing with journalists so as to minimize sensationalism and distortion. When given a choice among media organizations, choose those with reputations for fairness and accuracy.

Guidance and support from one's professional society is potentially a powerful aid to engineers in the kinds of situations considered here. Efforts are under way within the IEEE to improve the machinery for providing such support. Regardless of whether one obtains professional society support, it would be useful to engage an attorney to advise on the many legal aspects of the situation. But in considering their advice, one must take into account the tendency of attorneys to discourage any acts accompanied by legal risks.

CONCLUSIONS

Following the above guidelines will often lead to a satisfactory resolution of the problem at issue. However the situations treated here are inherently difficult. No tactics or strategies can guarantee a happy outcome. It takes courage and dedication to risk one's job, or even career, on ethical grounds. Many who have done so have suffered severe consequences, at least in the short run. It is not uncommon for the engineer's position to prevail, while the engineer is fired. Sometimes, the immediate battle is lost, but the result of the battle is that fewer such bad decisions are made in the future. Finally, one should also consider the personal consequences of yielding on a matter of principle when the result may be severe harm to others. This can cause a lifelong loss of self esteem.

IEEE STUDENT ETHICS COMPETITION RESOURCES

Glossary of Selected Terms

Many expert resources exist, see for example: The Online Ethics Center for Engineering and Science at Case Western Reserve University glossary at:

<http://www.onlineethics.org/glossary.html>

COMPLAINANT

As used in an IEEE ethics investigation, anyone who files an official complaint concerning the action or actions of another person who is a member of the IEEE. In general, any person who provides witness to a wrongdoing or problem.

CONFIDENTIAL

Information that must have its access limited to only those who have a need-to-know is considered confidential. Confidential information may be personal, financial, trade-secret technical, or other information that could cause unnecessary embarrassment or negative financial impact if disclosed beyond the control group. Confidential information that must be shared with another person must be shared only when they understand its confidential nature and agree to handle the information accordingly.

CONFLICT OF INTEREST

When a person or group is involved in a decision making process on behalf of others and they have or appear to have a personal or financial interest in the outcome, they could be considered to have a conflict of interest, in making said decision(s). The issue of conflict of interest may be mitigated by full disclosure of any such conflict(s) to the affected group, who may determine its interests are best served by allowing the person or group to retain the decision making responsibility.

FABRICATION

Information concerning or gained by any event that is untrue or unfounded by fact or other witness may be considered a fabrication. All information concerning ethical behavior must be founded on physical facts and/or on an oath of truth when provided by an eye witness. As used herein, fabrications does not refer to the assembly of a product.

FALSIFICATION

Testimony or other official information provided to facilitate an ethics investigation that is not true and accurate, by design or accident, is a falsification. Any act by an individual or group of individuals that represents or portrays as fact information that is not known to be true and accurate may be perpetrating an act of falsification.

NEGLIGENCE

An act that in which a responsibility is not discharged because of lack of prudent discharge of one's responsibilities and authorities, whether through ignorance or by intention, is an act of negligence.

PLAGIARISM

IEEE defines plagiarism as the reuse of someone else's prior ideas, processes, results or words without explicitly acknowledging the original author and source. Plagiarism in any IEEE publication is unacceptable and considered a serious breach of professional conduct, with potentially severe legal consequences.

PROFESSION

A service or action offered by an individual for pay that requires a high degree of competence in a complex field normally established through advanced education and extensive experience.

PROFESSIONAL ENGINEER

An engineer who is certified by license by an authority, such an authorized agency of a state government in the United States, as having met a set of qualifying requirements as demonstrated by education, experience and satisfactory performance on a written examination.

RESPONSIBILITY, OFFICIAL

What your job requirements are or what your corporation says you are supposed to do as it relates to them. The set of standards that are required by a particular assignment i.e. it is the responsibility of a U.S. Ambassador to represent the U.S.

RESPONSIBILITY, PROFESSIONAL

What is expected of me as defined by my profession. For example, a nurse has the professional responsibility to help someone who may be in need of services only they can render i.e. CPR.

SAFETY

Making sure your working environment and work practices ensure that nobody (company employees, contract employees, and visitors) is injured while performing any type of task.

WHISTLE-BLOWER

Some one who exposes, to those outside the organization, any type of unsafe, unethical, or unlawful activities going on within an organization. The person who releases the information does so regardless of the ramifications (positive and/or negative) of their actions.

For further information on these terms see the On-line Ethics Center's Glossary of Terms
<http://onlineethics.org/glossary.html>

IEEE STUDENT ETHICS COMPETITION CASE AND ANALYSIS FORMAT

Case Criteria

The competition cases should meet the following criteria.

- Each case must contain multiple ethical questions that student can identify.
- Cases should not depend on specialized technical knowledge to make a determination.
- The ethical issues should not be intentionally vague, i.e. the results of the analysis should not require significant assumptions.
- Preferably, the anticipated analysis would not result in findings that all of the ethical questions have a negative or a positive result.

The recommended length of the case descriptions should not exceed one page. Also, the cases must contain all needed information to make a determination as no outside references are allowed in the competition.

Analysis Format

CASE FACTS: Restatement of Relevant Facts

QUESTIONS: Summary of Ethical Questions

REFERENCES: Relevant Sections of the IEEE Code of Ethics

DISCUSSION: Analysis of Case. Any assumptions or special perspectives must be explicitly stated

CONCLUSION: Position Statement on Each Identified Ethical Question

IEEE STUDENT ETHICS COMPETITION SAMPLE CASES

CASE DESCRIPTION

A graduating engineering student is interviewing with several companies for an entry-level position. He receives an attractive offer from company A. Since the job market is very competitive, he feels it unlikely that another company will give an offer, much less an attractive one. The student accepts company A’s offer and returns a signed letter of acceptance which documents the terms of the position. However, he receives an offer from company B one week afterwards. This new opportunity has a higher salary, more benefits, better advancement prospects, and a more desirable location. It is significantly better in all respects. Since only one week has past since the first acceptance was returned and the new opportunity is clearly in his professional and financial interests, he tells company A that he has changed his mind and accepts the offer of company B. Company A does not express any criticism of the student’s actions.

Did the student act unethically?

ETHICAL QUESTIONS TO BE IDENTIFIED BY STUDENTS

Is the student ethically bound to honor the signed letter of acceptance with company A?
Has company A been harmed by the student’s action?

EXAMPLE ANALYSIS AND PRESENTATION OUTLINE FOR SAMPLE CASE

CASE FACTS: Restatement of Relevant Facts

The student formally accepted a position in which all significant terms of employment were specified. The student backed out of this agreement to accept a second, more desirable offer.

QUESTIONS: Summary of ethical questions

Is the student ethically bound to honor the signed letter of acceptance with company A?

Has company A been harmed by the student's action?

REFERENCES: Relevant sections of the IEEE code

Preamble: ... to the highest ethical and professional conduct ...

9. to avoid injuring others, their property, reputation, or employment by false or malicious action.

DISCUSSION: Analysis of case

The student did not act in good faith with the highest standards of conduct. He made a commitment to company A, which presumably was acted on by the company. The professional and financial self-interest of the student was no excuse. While the company probably has a legal case against the student, it has little to gain by pursuing litigation. Despite the short (one week) length of time, company A invested time and resources in processing employment paperwork and may have turned away other applicants for the position. The student thereby injured both the company and other potential employees.

CONCLUSION: Position statement on the identified ethical questions

The student was ethically bound to honor the first acceptance. He had formally completed an agreement. Company A gave no cause for a change in this agreement.

Company A potentially suffered harm in that other applicants for the position were turned away or found other employment.

IEEE STUDENT ETHICS COMPETITION RESOURCES

Internet Resources:

Materials Available from the Online Ethics Center for Engineering and Science at Case Western Reserve University at <http://www.onlineethics.org/index.html>

“Moral Exemplars” at <http://www.onlineethics.org/moral/index.html>

“Roger Boisjoly on the *Challenger* Disaster”

“William LeMessurier and the Fifty-Nine-Story Crisis:
A Lesson in Professional Behavior”

“Professional Ethics in Engineering Practice: Discussion Cases” at

<http://www.onlineethics.org/cases/nspe/index.html#safety>

(Note that these case studies use the format expected in the case analysis.)

“Public Safety and Welfare” 15 Discussion Cases

“Conflicting Interests and Conflict of Interest” 12 Discussion Cases

“Ethical Engineering/Fair Trade” 23 Discussion Cases

“Research Ethics” 4 Discussion Cases

References:

1. Institute for Electrical and Electronics Engineers (IEEE), *IEEE Ethics and Member Conduct Committee*, (2003) Available at www.ieee.org/ethics.
<http://www.ieee.org/organizations/committee/emcc/index.html>.
2. National Society for Professional Engineers (NSPE), *Engineering Licensure, Ethics, and the Law*, (2003), Available WWW: <http://www.nspe.org/pf-home.asp>.
3. Case Western Reserve University, *Online Ethics Center for Engineering and Science*, (2003) Available WWW: <http://www.onlineethics.org/index.html>.
4. Murdough Center for Engineering Professionalism, *National Institute for Engineering Ethics*, (2003) Available WWW: <http://www.niee.org/>.
5. Caroline Whitbeck, *Ethics in Engineering Practice and Research*, (Cambridge University Press, New York, NY, 1998).
6. Institute for Global Ethics, Ethics Newslines TM. Available WWW: <http://globalethics.org> (free weekly subscription).