Training Graduate Engineering Students in Ethics

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ABSTRACT

The Howard R. Hughes College of Engineering at the University of Nevada, Las Vegas embarked on providing ethics instruction to incoming graduate students in the form of a mandatory workshop.

The College has a diverse graduate student population, including a sizable international component, who are enrolled in several M.S. and Ph.D. degree programs within four departments. Faculty felt that training in ethics was needed to better prepare incoming students for successful graduate studies and working professionally after graduation. Therefore, a standalone workshop was developed that covered four major topics: Research Ethics, Computer Coding Ethics, Publishing Ethics, and Intellectual Property. The last topic covered copyright law, patent law, and trade secrets.

To develop this ethics workshop, some ethics instruction programs at U.S. engineering colleges were investigated.

INSTRUCTION METHODS

The workshop included a lecture on the basics of each ethical topic and a panel discussion with campus experts in each of the four topics, including faculty from the School of Law and the College of Engineering. The panel discussion was open, and based upon questions posed anonymously in advance.

At the end of the workshop, each participant received a flash drive with the lecture slides, a Frequently Asked Questions document containing written answers provided by the panelists, a bibliography, and resource materials for all four ethics topics.

RESULTS

The graph shows that out of 76 graduate students who attended the two Ethics workshops held in September 2015:

- 21% were from Civil and Environmental Engineering & Construction (CEEC)
- 7% were from Computer Science (CS)
- 42% were from Electrical and Computer Engineering (ECE)
- 30% were from Mechanical Engineering (ME)

The higher percentages from ECE and ME was because those departments made it mandatory for all engineering graduate students to attend, not just new students as requested by the Associate Dean. Assessment of effectiveness included pre- and post-workshop surveys of participants as well as feedback from faculty and panelists. The post-workshop survey gave an opportunity to the providers to provide feedback. Among the written responses, the participants stated that aspects of the workshop they found valuable included:

- “Discussion with the panelists”
- “Discussion about engineering-related research (using codes and citing them, figuring usage, etc.)”

When asked to rate three aspects of the workshop from 0 – 100, 0 being extremely poor and 100 being excellent, the respondents, on average, selected:

- The four ethics topics: 85 / 100
- Panel discussion and the opportunity to ask questions: 84 / 100
- Flash drive with resource material: 81 / 100

PRELIMINARY RESULTS

Preliminary results included panelist support for continuing to offer the workshop, and a good level of attendance by both new and returning graduate students.

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REFERENCES