

Experiences in Providing a Nation-wide Distance Education Course in Surveying Ethics

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Key words: education, professional practice

SUMMARY

The National Council of Examiners for Engineers and Surveyors requested the development of a nation-wide distance education course in Surveying Ethics for professional surveyors across the United States. The author, along with Dr. Knud Hermansen of the University of Maine, and Dr. Danny Scoccia of New Mexico State University were awarded a grant in 1997 to create the course. The course is offered to professional surveyors practicing in all 50 states in the US. The course may be taken via the Internet or by videotape. To date, over 200 professional surveyors have taken the course, many as a requirement to keep their professional surveying license.

Experiences with students have been both positive and negative. Students must be self-motivated to successfully complete the course. Students have the option of taking the course over the Internet or by videotape mail to them along with other course materials. While one might think that students taking the visual mode of learning (videotape) might fare better with the material than students taking the Internet mode, results show that there is little or no difference in success between the two modes.

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1. INTRODUCTION

A Survey Ethics course specifically designed to address problems commonly found among the US surveying profession was developed in 1998 under a research grant from the National Council of Examiners for Engineers and Surveyors (NCEES). Course material development was a collaborative effort between Dr. Steven Frank, Surveying Engineering, NMSU, Dr. Knud Hermansen, Surveying, UM, and Dr. Danny Scoccia, Philosophy, NMSU. The developed materials are first a course manual which covers the topics of Professionalism, Ethics, Professional Surveying Ethics, Solving Ethical Problems, and Practical Problems. Secondly, a casebook was written showing selected ethical problems that surveyors have encountered and possible solutions to resolving these problems. The casebook problems were in many instances based on actual problems that had been encountered by state licensing boards. The course material was designed to educate current and future professional surveyors about ethical pitfalls which they may encounter during their professional dealings. The course relies on a practical approach in which students are first given background reference material and then are given hypothetical ethical problems, many based on actual situations, to solve.

The background material first covers the definition of professionalism which underlies the need for professional ethics. The differences between everyday ethics and professional ethics are reviewed and discussed. Students are given to understand that professionals act as agents for clients and must safeguard client interests. Professionals are also charged with protecting public health, safety, welfare and property. The conflicts that can arise between these two duties are discussed.

The course materials are used in two courses taught in the Surveying Engineering program at New Mexico State University. Other US Surveying programs also used the ethics materials either in stand-alone ethics courses or as a part of another course. The author and several others also use the developed material when giving seminars on ethics at profession surveying society meetings.

Of the two surveying ethics courses at NMSU, one is a required 3 semester credit course for on-campus students seeking a degree in Surveying Engineering and the other is a non-credit distance education course designed for professional surveyors to complete continuing education requirements. The on-campus course has more depth and discussion on professional definitions and ethics and covers additional topics such as risk management, professional testimony, and contracts.

2. NMSU ON-CAMPUS COURSE

The on-campus course began as a 2 semester credit course titled “Ethics and Professionalism in Surveying and Mapping” with both credit hours devoted to lecture/discussion. The course has been expanded to become a 3 semester credit course with the addition of contract law topics. The course begins with definitions of professionalism as noted in common usage and under US law. The course proceeds with a review of the professional responsibilities and obligations that are stated or implied. These have been compiled from the codes of conduct of several states in the US and from reviews of state licensing board disciplinary actions.

After the review is completed, students move on to case studies involving hypothetical ethical situations which they must then solve using their knowledge of professional responsibilities and obligations. These begin as in-class discussions and lead to written homework assignments. Students are given a hypothetical situation, must define the actual and/or potential ethical problem(s) arising from the situation and write a letter or memo to an appropriate person (the boss, a client, a fellow surveyor, etc.) defining the problem and suggesting proper actions to avoid or mitigate the problem(s).

The course was expanded to three semester credits under the recommendation of students who had completed the course. The raising of the course to three semester credits also allows the course to be used by surveying students to meet the requirements for a Minor in Philosophy.

3. NMSU DISTANCE EDUCATION COURSE

The continuing education course is available over the Internet or by videotape/DVD. The cost of the course is \$159, excluding the videotape. A 15 hour videotape covering the course material was prepared under the NCEES contract and has since been transferred to DVD. The cost of the videotape/DVD is US \$100. The course was originally taught as a 1 semester credit class but problems with registering off-campus students and problems with providing the class in asynchronous mode caused us to change the course to from credit to non-credit. Most students take the course to meet requirements set by their respective state licensing boards. Some students take the course to satisfy continuing education requirements within their state. Others take the course satisfy conditions set under board disciplinary actions. The course syllabus is given in Appendix 1.

The course is asynchronous; students may sign up at any time and complete the course at their individual paces. Students are asked to either email or telephone the instructor with problems or questions. The normal time span for the course is 2-3 months. However, students have completed the course in a little as 10 days and as long as 2 years. Students not completing the course within two years are given incomplete grades unless they provide a written request for a course extension. The two year limit is NMSU policy.

The course consists of an ethics manual, an ethics case study book, 9 graded homework problems, which account for 60% of the final grade, and a final exam, which accounts for 40% of the final grade. Students are required to solve ethical situations as described above

and turn them in to the instructor for grading. A sample problem and sample answer are provided to students to help them understand the expected form of their answers (see the end of this paper for the samples).

Students may turn in their homework assignments either one at a time or in batches. Since many of the students are working professional surveyors, they tend to do the homework in batches when they are not busy at work. The homework problems are returned to the student with appropriate comments. The student then must schedule a day and time to take a multiple-choice final examination. This was done in the beginning over the Internet or by proctor, but has evolved into examination by fax. Problems with maintaining the security of the Internet exam site and the infrequent request by students to take the exam over the Internet led to phasing out that option. The examination is 25 questions, multiple-choice, with about one-half of the questions covering background material and one-half covering ethical situations. Students are given one hour to complete and return the examination. Most students complete the examination in 40 minutes or less. If students choose to take the final exam by proctor, they are required to find a local person of good standing who is not related to them. Only 3 students chose examination in this manner. Twice, local librarians were used and once a local community college instructor was used.

4. COURSE ASSESSMENT

As of the end of January 2007, 120 students had taken the course. There are currently another 18 students at some phase of completing the course. Students currently completing the course are those who have had some form of activity in the course within the past 18 months. Of the 120 who took the course, 16 students never completed the work (one student took the course twice and did not complete it either time). The course was first offered in January 2000, so over the 6 year run the course has average 23 students per year (138 students divided by 6 years). Students have taken the course from 25 states although nearly half of the students have come from the states of Kentucky (43) and North Carolina (21).

The average grade for students completing the course was 84.1%. The median grade was 84.5%. The low grade was 41.7% and the high grade was 95.9%. In comparing the students who took the course over the Internet with students who took the course using videotape, only one difference was noted: students taking the course by tapes were twice as likely to not complete the course as students taking the course by Internet. While the numbers are too small to make a strong statistical case for Internet students being better motivated than video students, it does put aside a personal belief that videotape students fared better in the course than Internet students. The course statistics can be seen below in Table 1.

	Total	Completed	Current	Incomplete	Average	Median
Internet	75	55	9	5	84.2	84
Tapes	63	49	9	11	84.1	85.3
	138	104	19	16	84.1	84.5

Table 1.

When reviewing grades of the 104 students who have completed the course, 21 students scored grades in the 90% or higher range, 62 students scored in the 80% - 89.9% range, 18 students scored in the 70% - 79.9% range and only 3 students failed to score at least 70%. The use of grades varies from state to state. Some states require only that the surveyor complete the course while other states require that the surveyor pass the course with a grade of 70% or higher.

Feedback from students at the end of the course is generally favorable. Most students felt that they had gained knowledge in an area that had been previously overlooked. A few students have felt that the course was too rigorous and difficult, especially for older surveyors who had not had the benefit of college or university education.

5. SUMMARY AND CONCLUSIONS

An ethic course for surveyors was developed for on-campus and off-campus students. The off-campus course is taught over the Internet or by videotape. Off-campus students are primarily practicing professional surveyors who take the course either to satisfy continuing education requirements or to satisfy terms of state licensing board disciplinary actions.

Students may take the off-campus course either over the Internet or by watching a set of videotapes consisting of 15 hours of recorded lecture. When comparing students who have taken the course by Internet to students who took the course using videotapes, no discernable differences were noted except that students taking the course by videotape seem more likely not to complete the course. We suspect that in some of those cases where students did not complete the course, the surveyors were older and decided to retire rather than to try to complete the course.

Personal communication with sitting members and executive officers of the various state licensing boards indicates that the course is a valuable tool for their purposes in educating surveyors about the responsibilities that they must practice and the way to look for problems that lie beyond the technical aspects of surveying.

BIOGRAPHICAL NOTES

Dr. Steven Frank is an Associate Professor in the New Mexico State University Surveying Engineering program where he has taught since 1994. He received a BS and MS in Surveying Engineering from California State University at Fresno and a PhD in Surveying Engineering at the University of Maine. His work experience includes 15 years of boundary and construction surveying in the western United States and in Saudi Arabia. He is a past president of the American Association for Geodetic Surveyors, a past president of the New Mexico Professional Surveyors and was chosen as the 2007 Surveyor-of-the-Year by New Mexico Professional Surveyors. He has been involved with FIG since 1999.

CONTACTS

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APPENDIX A

Surveying Ethics Course Syllabus

Course objectives: To provide students with an understanding of professionalism and the importance and use of professional ethics in surveying practice.

Course description: This course is designed to provide student with a basic knowledge of ethics as applied to professional surveying practice. We will review the definitions and characteristics of a profession, the basis for professional ethics, the principles of professional ethics for surveyors, and the application of those principles to specific ethical problems that may be encountered by surveyors. Course materials may include two manuals written by the instructor and others. Course manuals are available at \$10 each (\$20 for a copy of each manual).

Manual titles are:

Professionalism and Ethics in Surveying (Frank, Hermansen and Scoccia, 1997)

Case Studies: Ethical Practices for Surveyors (Frank and Hermansen, 1998).

The course materials were prepared in conjunction with a grant from the National Council of Examiners for Engineers and Surveyors (NCEES).

Course outline:

- Professionalism, Surveying as a Profession
- Ethics, Professional Ethics, and Ethical Considerations
- Tenets of Surveying Ethics
- Applying Ethics in Practical Situations
- Sample Ethical Situations and Solutions

APPENDIX B

Sample Ethics Problem and Solution

Jellet, Calibre, & Angstrom
Land & Boundary Surveying Services
100 Barrows Professional Building
Walker, Zena 01111-000
Office: 117-111-2111 Fax: 117-111-2112

To: [Your Name]
From: Tony Plisna, P.L.S.
Copy To: File #99-001

Date: 17 November
Encl: Carol's Letter
Re: Carol Jamison's Development

I've just received the attached letter from Carol. The letter upsets me for two reasons. First, Ben Turrel is not and has never been a licensed surveyor according to the most recent Board records. I don't know of any surveyors employed by his firm. His web site doesn't mention any. He usually gets Jane Goddel to stamp his plans when he needs a surveyor's seal and signature. I suspect that is what will happen this time. Second, we went over budget in preparing the preliminary design and getting it approved. Our profit would have come when we prepared the final design and staked out the development.

I would like you to prepare a letter for Carol telling her what an S.O.B. Ben Turrel is. Try and get her business back to us! If you can't find a way to get her back with us, find a way to charge her more for the preliminary design.

Enclosure (Carol's Letter)

Carol Jamison
"Land Development At Its Best"
1839 Orchid Street
Walker, Zena 01111-1839
15 November

Mr. Tony Plisna, P.L.S.
Jellet, Calibre, & Angstrom
100 Barrows Professional Building
Walker, Zena 01111-000

Dear Mr. Plisna,

Thank you for your effort and hard work in obtaining approval for my preliminary design. I have enclosed a check in the amount of \$2,342.00, the amount we agreed would be due and payable upon completion of the preliminary design. Rather than retain your services to continue the project through to the final design and monumenting the lots, I have retained the firm of Ben Turrel and Associates. Mr. Turrel spoke to our local association of developer's last week. He spoke at some length about the surveying and engineering requirements for a development. He seems like a very good surveyor and engineer. After the meeting I spoke to him about my development. He seemed very nice and asked if I could send him your preliminary plan to look at. He said your firm did very nice work and he always jumps at the opportunity to study your work and learn something. To make a long story short, he looked at the plan and made me an offer to complete the project for a price that is considerably less than yours. Please understand that I appreciate the high quality work of your firm, but I do need to watch my costs and keep the costs within reason if I expect to sell the lots in a competitive market. Could you please send me a digital file of my preliminary design as soon as possible so I can get the projected completed - thank you.

Sincerely,

Carol Jamison

Acceptable Answer

Note: This answer is an acceptable answer and would merit a passing score. However, it may not be the only answer or necessarily the best answer.

(Memo to the Surveyor)

Jellet, Calibre, & Angstrom
Land & Boundary Surveying Services
100 Barrows Professional Building
Walker, Zena 01111-000
Office: 117-111-2111 Fax: 117-111-2112

To: Tony Plisna, P.L.S.
From: [Your Name]
Copy To: File #99-001
Date: 18 November
Re: Carol Jamison's Development

Tony,

I've prepared a letter for Carol explaining the facts as we know them while making a pitch for our firm to complete the work. I don't believe it is proper or acceptable to start making accusations against Ben or his marketing techniques that we cannot prove with some reasonable certainty. Also, in all fairness to Carol, the contract is explicit about how much she must pay for the preliminary design. To try and weave some excuse to charge her more after we've billed and she has paid would stretch the imagination and be against what I feel to be acceptable ethical behavior.

I have prepared a letter that I hope will dissuade her from going with Ben Turrel's firm. Nevertheless, if her mind is made up, I can see no legitimate or ethical way to prevent her.

(Letter to the Client)

**Jellet, Calibre, & Angstrom
Land & Boundary Surveying Services
100 Barrows Professional Building
Walker, Zena 01111-000
Office: 117-111-2111 Fax: 117-111-2112
19 November**

Ms. Carol Jamison
1839 Orchid Street
Walker, Zena 01111-1839

Ms. Jamison:

We were surprised to receive your letter stating further work on the development would be done by Ben Turrel and Associates. A check of the latest roster of surveyors published by the Board of Licensure does not list the name of Ben Turrel as a surveyor - able and licensed to practice land surveying in this state. Furthermore, to the best of our knowledge, Ben Turrel does not have any employees that are licensed as surveyors. Accordingly, Mr. Turrel may have to subcontract out the surveying services to someone you may not know, have met, or will ever meet. I don't mean to imply that this will be bad for you or provide you with less service than you require. We make these assertions only to ask that you personally meet the surveyor that will be supervising your project and discuss your project with that person face to face. Not only could this avoid problems caused by a lack of communication but we hope you will see and appreciate the services our firm provides and reconsider your decision to complete the project using another firm. We do try to offer and provide superior services. While our services may appear more expensive in the short term, in the long term they save the developer and future lot owners money, reduce problems, and give peace of mind.

In regard to a digital copy of the preliminary design, we regret to inform you that the design is proprietary and copyrighted by our firm. It is our policy not to give permission for the use or copying of a preliminary design until after the final plan has been submitted by us and approved by appropriate agencies. Although this policy may prevent the use of the preliminary design by Mr. Turrel's firm, this policy was not adopted to be vindictive. It was established some years ago at the suggestion of a seminar speaker and our attorney. We have been informed that when another firm makes a mistake in completing our preliminary design, the mistake will likely subject this firm to costly liability even though the fault is not our own. As a developer, you no doubt understand our interest in keeping liability costs down in order to keep our fees reasonable. We will inform Mr. Turrel of our policy and basis for it so there is no misunderstanding between our firms.

Again, I hope you will reconsider your decision. In any event, please consider us for any future development. We appreciated your business and look forward to serving you again.

Sincerely,

Jellet, Calibre, & Angstrom