

GE401: A Professional Practice Primer at Tri-State University

David R. Finley, Ph.D., PE
Tri-State University

Abstract

New engineers quickly come to appreciate that it takes more than just technical experience to succeed and advance in a career. Tri-State University has a long-standing course designed to explicitly expose students to this concept just prior to graduation. This course, entitled *Professional Practice*, is required for all senior engineering majors. Its purpose is to provide students with the information necessary to initiate their chosen careers. *Professional Practice*, which emphasizes short- and long-term career goals, job search techniques, evaluation of employment offers, as well as critical “soft skills”, is the topic of this paper. Professional development and registration, graduate education, engineering ethics, and common business practices are also discussed. The components and evolution of this course are the focus of this paper.

Introduction

Tri-State University (TSU), located in Angola, Indiana, has a proud tradition of engineering education and innovation in the classroom. The institution is a private, non-sectarian baccalaureate and master’s degree-granting school founded in 1884. With a normal college heritage, TSU has emphasized career-oriented higher education since its founding. Nearly one-half of our undergraduates are first generation college students. TSU is a place that provides opportunity for these young adults, who are typically career-focused, goal-driven, and hard working.

TSU’s 400-acre main campus is located in Indiana’s northeastern-most county--about 8 miles from Michigan and 10 miles from Ohio. While commerce (subsequently renamed business) and teacher education were the programs first offered, engineering has had a significant presence at Tri-State since 1902. Currently, TSU has four ABET-accredited [1] programs, namely chemical, civil, electrical, and mechanical engineering.

Consistent with the mission to promote “intellectual and personal development, through professionally-focused learning opportunities, preparing graduates to succeed, lead, and serve”, Tri-State University undergraduate and graduate students receive personal attention through small classes and excellent teaching. TSU provides higher education that emphasizes [2]:

- active participation in classes, with a focus on teaming and collaboration
- the useful and practical, to complement rigorous theoretical study
- intentional co-curricular experiences to cultivate holistic student development
- learning how to do, while learning what to do

Course Inception

Professional Practice (GE 401), first listed in the TSU Course Catalog in 1981/82, was the brainchild of Dr. William (Bill) Hill. Then dean of TSU's School of Engineering, Dr. Hill saw the need for a seminar course which "introduced graduating engineering students to the ethical, legal, environmental, societal, and other climates encountered in the practice of their profession". (Note: This course preceded ABET2000 Program Outcomes and Assessment criterion a-k [3] by over a decade.) Taught in a seminar format, the course met one hour per week for the ten-week quarter.

By the mid-1990's, the course had evolved to include the following topics: career goals, recruitment and placement (two sessions by career center director), interviewing skills, job search strategies, company benefit packages, professional registration, business practices, graduate school information (via roundtable discussion with newly-hired faculty), ethics, and legal liability.

The course syllabus was quite brief, being just two pages in length. It stated that students "are expected to attend class". The grading/evaluation procedures for the course, which the author inherited from previous instructors, were also quite subjective being stated as follows. [4]

Satisfactory attendance and successful completion of the required assignments will result in a course grade of A. Unsatisfactory work or unsatisfactory absences will result in a lower grade at the discretion of the instructor. Unsatisfactory assignments will be returned to the student and must be corrected and re-submitted within two weeks. No passing grade below C will be given in this course. All assignments must be completed in order to receive a passing grade for the course.

The Switch to Semesters

In fall 1998, Tri-State University switched from an academic calendar based upon quarters to one based upon semesters. This had the impact of expanding the course from 10 hours to 15 hours. With this conversion, the content of every course taught at TSU was evaluated and reorganized. *Professional Practice* was no exception. With more hours of instruction time, additional content could also be incorporated.

It was at this time that the author coincidentally read an article in Chemical Engineering Education entitled *A Seminar Course on Professional Development*. [5] In the article, author Edmund Ko advocated an explicit grading system in which "students don't have to compete with each other." In this scheme, each student was given points at the beginning of the semester, and he or she would lose points only for "unprofessional behavior" along the way.

Moreover, Ko advocated having each student "submit [a brief] essay after each class meeting" to give ample opportunity to bolster written communication skills and reflect upon the topic at

hand. He further noted that “essays were graded satisfactory/unsatisfactory”. Satisfactory essays were defined as follows:

- *No more than one page in length*
- *Professionally formatted and presented*
- *Well written (as least free of typographical and grammatical errors)*

Ko also suggested several topics which were subsequently incorporated in professional Practice, including diversity in the workplace, budgeting and investing, and communication skills.

Current Incarnation of the Course

Professional Practice now meets once a week for 75 minutes for 10 weeks. This format was chosen over once a week for 50 minutes for 15 weeks (the entire semester) to enable students to focus on final projects and final exams at the end of the end of the term. This adaptation meets the “seat time” requirement and has been received very favorably by the students. (The class actually meets for about 30 minutes on the eleventh week for a wrap up session and so that the final project can be submitted.)

Through a series of ten discussion sessions, students are expected to:

1. Define their own short- and long term career goals and register with Career Services
2. State the importance of professional registration
3. Prepare a professional-quality cover letter and résumé
4. Understand various types of interviews and hone interpersonal communication skills
5. Evaluate a company’s job offer/benefit package
6. Appreciate value of diversity in the workplace
7. Grasp the issues associated with graduate school
8. Comprehend corporate and personal finance fundamentals
9. State the social and legal responsibilities of an engineer
10. Identify their discipline’s code of professional ethics
11. State the attributes of an entrepreneur and understand the Stage-Gate Process

In lieu of a required textbook, handouts on various topics are provided in class and a coursepak is available at the Reference Desk of the library. The coursepak contains selected articles that provide additional information should a student choose to delve further into a particular topic. References also include *What Color is Your Parachute? A Practical Manual for Job Hunters and Career Changers* by Bolles [6] and *Finance and Accounting for Non-financial Managers* by Droms. [7]

Schedule

Given the extended length of the class (75 minutes), two to three topics are typically covered each week. Multiple topics enable the author to “mix it up” in the classroom, providing a variety of learning modes (discussion, teaming activity, lecture, etc.) to be offered throughout the session. Each class session begins with a brief discussion of current events as they relate to job

hunting, i.e. quarterly economic trends, major news in a particular industry of interest, pertinent job ads in the local newspaper or on-line, or the campus interview schedule. This is followed by a listing of the major topics to be discussed for the day. Specific classes are designed to have a mix of information dissemination and interactive exercises. Rather than attempting to be the “sage on the stage”, I strive to operate in the role of coach, encouraging students to develop and discuss the topic at hand. Outside speakers, most frequently on the topics of “job search strategies” and “personal budgeting/investing”, serve to break up the course routine (i.e. author always leading classroom activities) and inject external expertise.

The course schedule is presented in the following table.

Class Meeting	Topic
Week 1	Introduction and Career Goals
Week 2	Professional registration Job Hunt Correspondence
Week 3	Job Search Strategies (Guest Speaker)
Week 4	Resume Roundtable/Interviewing
Week 5	Interpersonal Communications, Company’s Benefit Packages, Negotiating an Offer
Week 6	Sexual/Racial Harassment, Graduate school - Faculty Roundtable
Week 7	Personal Budgeting/Investing, as related to Corporate Accounting (Guest Speaker)
Week 8	The Law & Professional Liability Tort Law, Contract Law, Your Signature as an Engineer
Week 9	Ethics – “Engineering Can Kill”, Code of Ethics
Week 10	Entrepreneurship
Week 11	Primer: Accepting Honor Cords Expected/Top Performance (Charge to class) “A Message to Garcia”
	Makeup Class??

Because there is no substitute for practice, students are actually encouraged to miss class to participate in either an on-campus or off-campus interview. To encourage reflection on this learning activity, students are given the following assignment in lieu of class attendance.

If you miss class because of an interview, a one-page memo answering who, what, where, when, why, and how (did you learn from this activity) must be submitted within one week of the absence.

Students are also charged with the responsibility to “get all notes and materials that were handed out in class and to complete any assignments prior to the next class meeting.”

Attire

A unique aspect of this class is the focus on wearing professional attire to class from week 3 to week 10. The following statement is placed in the syllabus, and relates explicitly to points awarded for class participation/positive attitude.

Unless otherwise noted, you (students) are expected to dress appropriately for a relatively conservative business setting. For example:

- *Men are expected to wear a button down shirt, tie, and khakis or better (no jeans), and no baseball caps or tennis shoes.*
- *Women are expected to dress comparably (no jeans or denim skirts), and no sleeveless tops or spaghetti straps.*

The purpose of this requirement is to show the students that what one wears can affect how an individual is perceived. It also gets students comfortable with wearing business attire. For some of the men, this requirement prompts them to learn how to knot a tie. (Others simply have a classmate assist with this task.) Colleagues about campus comment how well the students are dressed on Tuesdays, and Tri-State University has developed a reputation at area career fairs for having students attend properly attired for a business setting.

Homework

As with Ko[8], students are required to submit an essay after each class meeting, so that they might further consider the topic covered each session. The essays are graded on a five-point scale, using the scheme outlined below. Occasionally, students are given the choice of attending a TSU Distinguished Speaker Series presentation or preparing the weekly reflective memo. Attending a TSU Distinguished Speaker Series presentation exposes the student to interesting people and expands their horizons.

Grading Criteria and Grades

Similar to the scheme used by Ko[9], the grading system for this course has been designed in such a way that students are not competing against each other. Instead, everyone is given **100 points** at the beginning of the course, and a student loses points **only** for displays “unprofessional behavior”, defined as:

- An unexcused class absence (**minus 5 points**)
- Arriving more than 5 minutes late for class (**minus 3 points**)
- Not properly attired for class (**minus 3 points**)
- Not turning in a homework assignment (**minus 5 points**)
- Turning in homework that is unsatisfactory (**up to minus 3 points**)
- Turning in homework late (**minus 3 points**)
- Not completing the cover letter and resume' assignments in a satisfactory manner by the end of the course, i.e., within first 10 weeks of the semester (**automatic failure**)

In turn, I hold myself to the same standards of professionalism. Students are awarded 5 points if I miss a class without prior notification or a valid excuse, arriving late for class, or do not return homework at the beginning of the following class meeting.

The remaining 25 points in the course are earned as follows:

- The final group presentation will be worth three homework assignments (**15 points**)
- Class Participation/Positive Attitude (**10 points**)

The following scale is used when assigning grades:

A	€	[115,125]
B+	€	[110,114]
B	€	[105,109]
C+	€	[100,104]
C	€	[95,99]
F	€	[0,94]

Please note that a grade of D or D+ is not awarded for this class. Substandard performance in the workplace ultimately results in termination, especially when economic “times get tough”. Thus, substandard performance is not tolerated in the course.

Time Commitment

Students spend, on average, one hour a week outside of class on the reflective memorandum assignments. This provides an additional hour (given the typical two hours of studying for every hour in class model) each week for students to conduct their job search. For me, the time spent preparing for the course typically involves one half hour the night before to review/revise lecture notes and about one hour prior to class to arrange handouts and otherwise prepare for class. I have an upper-class English student assist with reviewing the memoranda for proper grammar, but I assign the grade for each of these submittals. Actually, a significant component of the class might be considered “office hours”, where students receive individual consultations in response to job search questions. Such inquiries are also received with increasing frequency via email.

Students Comments

At the end of the semester, Tri-State University requests feedback on various aspects of each course from every student. These student course evaluations contain numeric scale responses, as well as short essay questions. TSU systems precludes instructors from seeing any responses until after grades are posted, and actual hand-written responses are destroyed once placed in typewritten format. The author strongly encourages students to respond to the question “What does the instructor do best that he or she should not change?” The following statements are representative responses.

Interesting topics... I liked having a different subject each week.

The class ending early was nice.

[This class] really helped [to] develop a professional-looking resume.

I feel financial planning is very important, and this presentation served [us] well.

Dr. Finley treats students with a lot of respect, and [he] was always willing to make their overall experience a good one. Thanks!

Students are also strongly encouraged to answer the question “What does the instructor need to improve?”

I don't like busywork. I would cut down he number of memos and weekly assignments assigned (sic) and only require the ones that are necessary.

[I would like] more info about the job search process, [and] how to get your foot in the door.

It would be nice if we could attend a career fair or have some human resource people come in to talk to us.

Students who have [work experience] should not be required to take this course.

Lest these last four comments be given too much weight, the numeric ranking to the question “Overall, I would rate the quality of instruction in the class.” was 4.48 and 4.26 for the two course sections taught in Fall 2006. However, these comments, and other suggestions, are thoroughly considered when contemplating changes to improve the course moving forward.

Conclusion

It is the phrase “learning how to do, while learning what to do” used to describe TSU’s mission that has inspired the development and evolution of *Professional Practice (GE401)*. To quote Herbert Spencer, “the great aim of education is not knowledge, but action.” [10] As soon-to-be graduates, it is presumed that these students will achieve a minimum level of technical competence. The goal of this class is to review the non-technical attributes required to be a productive, as well as knowledgeable, engineer.

Bibliography

- [1] ABET is the Accreditation Board for Engineering and Technology. Tri-State University's programs in chemical, civil, electrical, and mechanical engineering are accredited by the Engineering Accreditation Commission of ABET. ABET's national office is located at 111 Market Place, Suite 1050, Baltimore, Maryland, 21202-4012, USA, Telephone (410) 347-7700
- [2] Parrott, A.A., *History of Tri-State College*, Tri-State College Printshop, 1959
- [3] ABET, “Criterion 3. Program Outcomes and Assessment”, *Criteria for Accrediting Engineering Programs*, Effective for Evaluations During the 2006-2007 Accreditation Cycle, Oct. 29, 2005
- [4] Finley, D.R., *Course Syllabus*, Professional Practice, GE401, Spring 2007
- [5] Ko, E.I., “A Seminar Course on Professional Development”, *Chemical Engineering Education*, 32 (3), 1998, pp. 234-237
- [6] Bolles, Richard Nelson, *The 2005 What Color is Your Parachute? A Practical Manual for Job Hunters & Career Changers* – 35th edition (2005), Ten Speed Press, Berkeley, CA
- [7] Droms, William G., *Finance and Accounting for Non-financial Managers*, Revised edition (1983), Addison-Wesley Publishing Company, Reading, MA
- [8] Ko, E.I., “A Seminar Course on Professional Development”, *Chemical Engineering Education*, 32 (3), 1998, pp. 234-237
- [9] Ibid
- [10] Carnegie, D, *How to Win Friends and Influence People*, ***, 1948, p. 4

Biography

DAVID R. FINLEY, PE

Dr. Finley earned his B.S. and M.S. in Atmospheric Science from the Univ. of Michigan and later his M.S. and Ph.D. in Chemical Engineering from Wayne State Univ. in Detroit. Dr. Finley began his career as an environmental consultant with ASTI in the Ann Arbor, Michigan area. In 1996, he joined the faculty of Tri-State University, where he currently serves as Vice President for Academic Affairs and Associate Professor of Chemical Engineering.