

**Advances in Technical Communications in the Cullen College of
Engineering at the University of Houston**

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Abstract

This paper describes the recent initiatives in technical communications developed by and in the Cullen College of Engineering at the University of Houston, including the creation of a new technical communications course, “interventions” in seven existing courses, the development of a special section of freshman English composition, and the reconstruction of a graduate seminar. The College also created a new position and hired a Director of Technical Communications Across the Curriculum to manage the College’s efforts in developing technical communications education opportunities and to coordinate these efforts with the Department of English and the University of Houston Writing Center.

Introduction

The University of Houston (UH) Writing Center¹ was established by the Department of English in Fall 2000 to provide assistance to students in core composition classes. The Writing Center currently consists of nine writing professionals and a group of about fifty

“Writing Consultants,” or peer writing coaches, who provide one-on-one tutoring. These Writing Consultants are full-time students, primarily undergraduates, who have demonstrated high aptitude in writing and leadership skills. In response to increasing faculty interest in discipline-specific writing, the Writing Center created a Writing In the Disciplines (WID) program in Fall 2002. Staff in the WID program work with instructors to intervene in courses across the campus in which communications skills are stressed. The rationale for the intervention is that general composition courses cannot adequately prepare students for discipline-specific writing. (More information on the UH Writing Center and its WID Program can be found in Reference 2.)

The WID program became involved in several activities with the Cullen College of Engineering (CCE), including interventions within the sophomore and capstone design courses. The WID program also worked with the Electrical and Computer Engineering Department (ECE) to develop a new technical communications course, ENGI 2304, that is currently being taught in the College of Engineering for the third semester. This course is now administered within the CCE through the College’s new Director of Technical Communications Across the Curriculum. The Director has initiated several other collaborations within the College involving civil engineering courses and the introduction to engineering courses in mechanical, electrical, and bio-medical engineering. This paper will provide details on the WID interventions, as well as the other efforts at improving communications within the CCE.

Communications in the Capstone Design Courses

While the WID program was developing at the UH Writing Center, the CCE was searching for ways to improve the communications skills of its graduates. The capstone design instructors approached the Writing Center’s WID program after a new capstone design course in ECE was merged with the existing capstone design course taken jointly by mechanical engineering (ME) and industrial engineering (IE) students, increasing the enrollment from 30 to nearly 90 students a semester. The capstone instructors worked with the WID program manager to develop a comprehensive set of individual and team communication projects.

In the capstone course teams of four students work on individual projects submitted by industry and faculty. In the past the team had jointly prepared and submitted a variety of reports throughout the semester. In the new format each team member is made personally responsible for one oral and one (different) written report. These reports may include a proposal, a progress report, or a technical report, and these two assignments now represent 15% of the individual’s course grade. The team is still responsible for preparing five written planning reports, a final technical report, a final oral presentation, a poster, and an extended abstract. To help students prepare these documents and presentations, a series of just-in-time interactive workshops were developed and conducted by Writing Center personnel. The student with the individual responsibility to prepare a specific oral or written report is required to attend the appropriate workshop, which is scheduled during normal class time about two weeks prior to the submission or

presentation. Grading criteria for these assignments were developed jointly with the WID program, made available for each type of report, posted on the course website, and discussed in the workshops. Each student must also attend at least three of the ten optional workshops on the following topics: posters; extended abstracts; abstracts, introductions, & conclusions; mechanics & proofreading; tone in technical communications; effective use of figures & examples; and paragraph structure. (See References 2 and 3 for details.)

WID and Sophomore Design in ME

This cooperative activity with the WID program has now been extended to the sophomore design class in ME where five writing workshops were developed and offered by the WID program for the first time in Fall 2004. The workshops begin with a 60-minute PowerPoint lecture on the main workshop topic, followed by approximately 30 minutes of group and individual discussion of handouts and examples. The first workshops are report-centered, e.g., progress and technical reports, and are designed to familiarize students with the purpose, audience, and traditional presentation strategies of each type of report. The next workshops are section-specific, e.g., abstracts, introductions, context, results, discussion, conclusions, and recommendations. For the presentations workshop, students are exposed to general strategies for effective oral presentations, guidelines for appropriate use of PowerPoint technology in a presentation, and typical writing issues associated with slide composition and the presentation of graphical data. In addition to instruction on the main topics, the workshops targeted essential information, skills, or “tips” related to technical writing and communication in general, e.g., the order that sections of a report should be written, the appropriate types of visual aids for various situations, and a specified checklist of questions that the writer of a certain report or section should ask him or herself at different stages of the writing process. All of the workshop PowerPoint slides are made available to students on the Writing Center web site. In addition to the slides, several instructional handouts and tip sheets are also posted on line. The various writing samples and graphics discussed during the final third of each workshop are taken from previous student work in the capstone design course. The writing samples and graphics generally reflect an equal amount of strengths and weaknesses, and students are instructed to observe and discuss both.

In addition to the support offered by the interactive workshops, a course-assigned, peer Writing Consultant specializing in engineering and technical communications meets with the students in their teams and individually to review drafts of their writing assignments prior to submission to the course professor. Student teams are required to submit drafts of their team reports to the course Writing Consultant a week in advance of their final due date. The Writing Consultant then prepares comments for discussion during the 45-minute consultations designated for each team. Often the Writing Consultant and team members work together during the consultation to discuss a solution. The Writing Consultant attends each of the workshops and is provided with multiple resources for technical writing, including the assignment instructions provided by the course professor,

in order to answer specific student questions. The interaction with the Writing Consultant models the revision stage of the writing process for the students, helping them develop the skills necessary to revise their own work. Through the consultations, the students gain a better understanding of the benefit of revision in their writing. In addition to the team consultations, students may arrange individual consultations with the course Writing Consultant. During these consultations, students receive one-on-one attention for the specific section of the team report or the individual course assignment.

History of ENGI 2304: Technical Communications

Building on the positive efforts established by the joint efforts between the CCE and the UH Writing Center's WID program, ECE began revising its technical communication requirement in 2003. Previously, this requirement could be fulfilled through a large technical writing class taught within the College of Technology or by a science and literature course taught by the Department of English. ECE was dissatisfied with the preparation these courses provided for its students, especially in the area of technical presentations.

Therefore, ECE began working with Jenna Terry, then the Director of the WID program in the Writing Center, to create ENGI 2304: Technical Communications. Three sections of the course were taught by Writing Center staff in Spring 2004. These sections concentrated on short writing assignments that dissected the larger components of a technical report. At the beginning of the course, students gave a short PowerPoint presentation of their resume, and then presented as a group at the end of the course on a longer technical project. Writing Consultants were used to offer students guidance and individual instruction. Each student enrolled in the course was required to see a Writing Center Writing Consultant twice during the semester to discuss his or her ongoing writing project.

The successes of these diverse efforts to teach communications skills convinced the CCE to create the new position of Director of Technical Communications Across the Curriculum within the College and hire a PhD in English for this position in August 2004. The Director's role is to develop and manage ENGI 2304, and to coordinate and manage all of the College's communications efforts, including working with the UH Writing Center and the Department of English to establish and develop a comprehensive technical communications program and to support communications activities for both students (undergraduate and graduate) and faculty of the College.

The Technical Communications Course Today

During Fall 2004, ENGI 2304 was taught in much the same way as it had been previously, but it was transformed in Spring 2005 to accommodate a more social constructivist view of knowledge. According to this theory of discourse communities, the individual members of any social, political, or economic group controls what can and

cannot be said in the community. In other words, the community of engineers has a specific discourse, and it is this discourse that students must learn to be a part of. “Discourse” in this sense is larger than simply knowing grammar and report formats, however; it also covers the types of evidence that are acceptable in engineering, as well as the writing style. In order to really become a part of the discourse community, students must learn to think like engineers. For more information on discourse communities and social constructivism, see the work of French deconstructionist historian Michel Foucault⁵.

Four textbooks are currently used in ENGI 2304 to help students enter into the discourse community of engineers: Lester Faigley’s *The Brief Penguin Handbook*⁶, Eugene Ferguson’s *Engineering and the Mind’s Eye*⁷, Leo Finkelstein’s *Pocket Book of Technical Writing for Engineers and Scientists*⁸, and Dava Sobel’s *The Best American Science Writing 2004*⁹. Faigley’s work is a standard handbook for writing classes, including information on conducting research, citing sources, and correct grammar and style. Ferguson’s book is a history of engineering design that argues for a more visual-centered engineering education. While he doesn’t discount math and science’s impact on engineering, Ferguson desires more emphasis on design, as well as hands-on experience. This text provides provocative material for discussion and journal assignments, as it also introduces students to the history of the profession in which they are entering. Sobel’s edited collection of science writing is used for a similar purpose. The material is drawn from disparate sources, mainly popular magazines, and it demonstrates two fundamentals: how experiments are conducted and how such complexities can be communicated in clear ways for non-technical audiences. Finkelstein’s *Pocket Book of Technical Writing for Engineers and Scientists* is the traditional “textbook” for the course, and we use it as a guide for writing specific documents.

With these textbooks, the course took on two main goals: reading scientific and engineering writing to understand scientific methodology and problem solving; and analyzing various audiences and purposes in order to write engineering documents, including types of noise that may interfere in communication. The first goal discusses the rhetoric surrounding engineering communication, while the second is about communication theories, or what allows for effective communication within the rhetoric of the first goal. Ten student expectations were identified, allowing for better assessment during and at the end of the course. Students are expected to develop or learn the following in ENGI 2304:

- Confidence in communication, both oral and written
- Knowledge about the style of engineering and scientific writing
- Knowledge of the forms of engineering writing
- The ability to create documents written in the correct format
- The ability to adapt content and style depending on the needs of the audience
- The ability to adapt content and format depending on the purpose of the document

- The ability to edit and revise one's own work for content, style, and mechanics
- The ability to find information on engineering topics
- The ability to manage a group and produce group documents and/or presentations effectively and efficiently
- The ability to create effective engineering presentations

As you can see from this list of student expectations, much of the work in ENGI 2304 is about writing. Students begin by interviewing an engineer or engineering professor and developing an essay to be submitted to the College magazine, *Parameters*. Their essay should be engaging and understandable to a non-technical audience. Students then work on a proposal for a group presentation. Along the way to the group presentations, students must submit an individual progress report and an extended abstract that can be submitted to a conference. Besides these longer writing assignments, individual students must write four extended summaries of chapters or articles from the textbooks as practice for writing abstracts and executive summaries, complete at least seven discussion or bulletin board entries on our class website, and participate in five peer review sessions. At the end of the course, students must compile all of their work during the semester in a portfolio, including an introduction discussing their work, their improvement, and where they still need help.

Despite all of these writing assignments, the course has also become much more focused on PowerPoint presentations. Students give two individual presentations that last between 4-5 minutes—one on the interview essay for a non-technical audience, and the other concerning the proposal. At the end of the course, student teams present for thirty minutes on a topic from physics, math, or chemistry. Previous topics have included Boolean algebra, Kirchoff's Current Law, torque, Ohm's Law, and Lenz's Law, all subjects that students should have encountered in their previous courses. Each student of the four-person group must present for at least five minutes, and ten minutes are left for questions at the end. Each of these presentations is videotaped, and plans are to provide every student with electronic copies of his or her work during the semester, to be self-critiqued as part of the final portfolio.

ENGI 2304 is currently taught in the Writing Center itself, not in the College of Engineering, allowing students to become intimately familiar with the Writing Center's resources. Their computer classroom offers a unique venue for peer evaluation and critique, as students send their files to one another to be reviewed. Students are still required to see a Writing Consultant twice during the semester. At the first meeting with a Writing Consultant, students must bring a draft of the proposal. Near the end of the course, students meet with a Writing Consultant again. This time, student teams meet together with the Writing Consultant to practice their final presentation and receive feedback concerning the group's slides, as well as individual students' presentation styles.

There are currently four sections of ENGI 2304 taught each semester, but plans are for this number to increase. The course is limited to twenty students in each section, both to allow for the use of the computer classroom and to allow for more feedback from the instructor. Currently, the course is required for all Electrical and Computer Engineering majors, and it has been added to Civil Engineering's curriculum, as well. If the other three departments in the College adopt the course, plans are to teach eight sections a semester.

Assessment in ENGI 2304

The UH Writing Center conducted end-of-the-semester surveys in all four sections of ENGI 2304 in Fall 2004. The results of the surveys are presented in Tables 1 and 2. Table 1 provides the summary of responses to 22 statements related to the students' feelings about their success in achieving the course outcomes. Table 2 contains self-reported data concerning the students' familiarity with the English language.

The 22 questions listed reveal moderate to highly positive responses to the "student expectations" outlined earlier. While students still express some hesitancy in compensating for their weaknesses (question 3), confidence in communication (question 5), and their abilities to convey complex information, these hesitancies may be partially explained by the information in Table 2 and the makeup of the student body in CCE and the University of Houston in general. Most students expressed (in Table 1) their understanding of engineering writing (statements 4, 16, and 18) and their ability to adapt to different audiences (statements 9, 14, and 22), two of the more important student expectations. Students also expressed their ability to work in teams (statements 1, 12, and 18) and their understanding of revision (2, 8, 13, and 19).

The "means" in Table 2 have several different definitions as indicated in the table footnotes. For example, the results of the first question indicates that 23% of the students (for a mean of 4.07 between 5.0 = yes and 1.0 = no, $0.93/4.00 \times 100\% = 23\%$) prefer a language other than English for speaking. From question 5, 30% consider themselves non-native speakers of English.

Communications Intervention in Other Engineering Courses

There are many other communications projects occurring every semester within the CCE. Currently, writing or presentation projects have been arranged or have taken place in the following courses:

- CIVE 3332: Engineering Materials. The Director of Technical Communications Across the Curriculum redesigned and clarified the guidelines for laboratory reports; commented on students' reports to aid the instructor; and presented to the course on cohesion in engineering documents, one of the students' weak areas.
- CIVE 6311: Graduate Seminar in Civil Engineering. The Director presented to two sections on effective engineering presentations.

Table 1: Results from Fall 2004 End of the Semester UH Writing Center Survey for Four Sections of ENGI 2304: Technical Communications

#	Statement	N**	Mean [#]	σ ^{##}
1	I can organize effective presentations with other people.	55	4.44	0.66
2*	I understand how revision helps my writing.	56	4.07	1.35
3	I know how to compensate for weakness in my writing.	56	3.77	0.99
4	I know how to write several types of reports on engineering subjects.	56	4.07	0.85
5	I am confident in my verbal communications skills.	55	3.96	0.88
6*	I can organize my work for a group project.	55	3.89	1.08
7	I can communicate complicated information in my writing	56	3.89	0.89
8	I know how to evaluate and revise my coursework accordingly.	56	4.16	0.78
9	I understand how the audience dictates the manner of the presentation.	56	4.27	0.75
10*	I am comfortable writing in the field of engineering.	56	3.70	1.29
11	I can convey complicated information in an oral presentation.	56	4.20	0.70
12	I know how to share the workload in a group project.	56	4.34	0.72
13	I know how to revise my own work.	56	4.07	0.99
14	People understand me when I express complex material in a conversation.	56	3.88	0.85
15	I understand how the purpose of an assignment dictates its content.	56	4.27	0.82
16	I understate the correct format for engineering reports.	56	4.27	0.77
17*	I can verbally explain technical information in a clear manner.	56	3.56	1.20
18	I am comfortable working in a group to produce technical documents.	56	4.13	0.90
19	Revision is an important stage of the writing process.	56	4.59	0.73
20	I know how to emphasize the strengths of my writing.	56	4.23	0.74
21	I am confident in my writing ability.	56	4.20	0.80
22	I understand how engineering writing differs from other styles of academic writing.	56	4.50	0.60

* Reversed Statement. To help identify (and perhaps eliminate) “lazy” survey respondents, it is common practice to include both positive and negative statements, e.g., statement #2 read, “I do not understand how revision helps my writing” in the actual survey. When the results are presented, it is common to reverse the negative rating, i.e., the 1.93 rating for the negative statement #2 becomes a 4.07 for the positive statement #2.

** Number of responses

Mean response: 5 = strongly agree; 4 = agree somewhat; 3 = neither agree nor disagree; 2 = disagree somewhat; 1 = disagree strongly.

Standard deviation of responses

Table 2: Self-reported English Language Proficiencies for ENGI 2304, Fall 2004

#	Question	N*	Mean**
1	Is English your most comfortable language for speaking? 5 = yes; 1 = no.	56	4.07
2	Is English your most comfortable language for writing? 5 = yes; 1 = no	56	4.50
3	How old were you when you began speaking English? 0-4 = 5; 5-6 = 4; 7-11 = 3; 12-16 = 2; 17+ = 1	54	3.98
4	How many years have you lived in the USA? 10+ = 5; 7-10 = 4; 3-6 = 3; 1-2 = 2.	55	4.07
5	Do you consider yourself a native speaker of English? 5 = yes; 1 = no	54	3.81

* Number of responses

** Mean (See scale with each question)

- CIVE 3331: Introduction to Environmental Engineering. The Director worked with the instructor to develop a report assignment regarding the EPA's guidelines for risk analysis of various chemicals. Then the Director presented to the class about the best ways to complete the assignment, commented on student's drafts, and then commented on the students' final versions to aid the instructor in grading the reports.
- ECE 1100: Introduction to Electrical and Computer Engineering. The Director worked with the instructor on requirements for a progress report and a technical report/presentation. He then gave two presentations on the best ways to fulfill these assignments, one on business letters, memos, and progress reports, and the other on technical reports and presentations.
- BIOE 1397/1197: Introduction to Biomedical Engineering. The instructor worked with the Writing Center to develop two workshops/presentations on progress reports and technical reports. Students then met with Writing Consultants regarding their written projects.
- CIVE 7397: Case Studies in Environmental Engineering. The Director worked with the instructor on the technical reports students must write regarding the material in each class. Then he presented on technical reports and presentations, offering techniques for completing the reports as well guidelines for effective presentations. The latter offered methods for critiquing the presentations to be given in each seminar.

- CIVE 4312: Capstone Design in Civil Engineering. The Director designed a presentation on technical reports and how best to go about writing them.
- IE 4397: Operations Control. The Director led a presentation critique in class and offered general tips and guidelines for technical presentations.

These ongoing projects within various departments of the CCE are a part of a concerted effort to develop student communications. The goal of the CCE is to target one required course within each discipline to have a communications skills emphasis for each year of a student's education. In other words, a student will begin with the discipline-specific introductory to engineering course, which will emphasize communications as well as engineering content. The following year, students will move to ENGI 2304: Technical Communications, which will build on the knowledge base developed in the introductory courses, as well the first two semesters of English Composition. During the junior year, students will take another course that emphasizes communications, and will follow that up with the capstone design course. Ideally, these emphases in communications will build on one another to form a strong communications component within every degree plan.

This communications emphasis can be illustrated through the ECE curriculum. The ECE was the first department to require ENGI 2304, and they have already targeted several other courses, just as the other departments are beginning to do. We call this emphasis on communications within the curriculum the "communications spine." In ECE, the communications spine is comprised of five courses: ECE 1100: Introduction to ECE, ENGI 2304: Technical Communications; ECE 2100: Circuit Analysis Lab, ECE 3455: Electronics (which includes a laboratory component), and ECE 4334: Systems Design or Capstone Design. Figure 1 shows where these five courses fit into the ECE curriculum.

Composition II for Engineers

Besides these efforts within the College of Engineering, MECE has begun experimenting with a freshman composition course for engineers, taught by the Department of English. ENGL 1303: Composition I and ENGL 1304: Composition II have traditionally been introductions to academic discourse. Composition II stresses rhetoric and argument, both in society in general as well as the academic community. Beginning in Spring 2005, the College of Engineering is sponsoring a section of Composition II specifically for engineers. The course continues to stress rhetoric, but it does so through technical writing. Students are introduced to general business discourse and formats, but the course also introduces them to technical writing, including ethical issues within engineering. As the syllabus for the course states,

“While all English 1304 students are expected to exit the course with a good working knowledge of the fundamentals of critical analysis and argument, students in this section will also work with persuasion as it functions in professional documents, will participate in in-class and written analysis of issues relevant to the field, and will take part in a

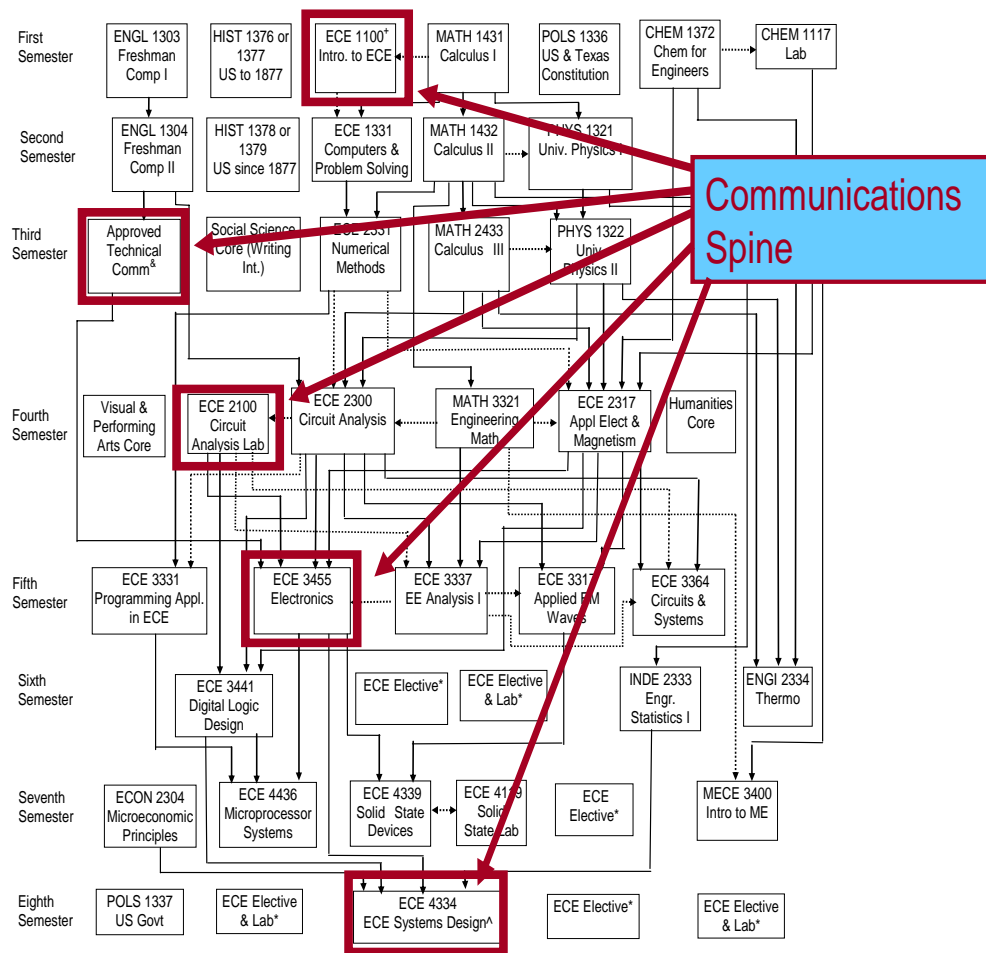


Figure 1. The ECE curriculum flowchart with the communications spine highlighted.

symposium treating several of those issues. In addition, students will produce a lengthy researched argument on a topic relevant to engineering.”

This special section of Composition II is taught by a PhD candidate in creative writing who worked as a technical writer for thirty years. Although she is an exception to the norm of graduate students who teach Composition II, it is hoped that CCE and the Department of English can continue to offer these courses to interested first-year engineering students.

Graduate Seminar in Communications

As the list of interventions in engineering makes clear, both undergraduate and graduate students need further communications instruction. One-shot presentations on writing or presenting are rarely enough to truly educate students on proper report writing or

presentation skills. It is true that graduate students should have been introduced to the techniques of technical writing and presentations before beginning graduate school, but many graduate students are still under-prepared, especially in the area of technical presentations. To help alleviate this problem, the Director of Technical Communications Across the Curriculum began working with a graduate seminar in microelectronics. The one-hour seminar was generally seen as a way for the microelectronics group to meet and discuss their research, but the seminar had become a disappointment for students and a nightmare for the instructor, who had to attempt to find speakers for weekly meetings.

Instead of merely disbanding the seminar, the instructor discussed the issue with the Director, as a way to reinforce communications for graduate students. A tentative schedule was devised that divided the course into three sections. The first section is based on report writing and research, including presentations and workshops on the following topics: analyzing the audience and purpose of engineering documents; using the advanced features of Microsoft Word to write reports, theses, and dissertations; as well as a presentation from an engineering librarian on advanced database research. The second section of the class covers revision and self-editing. Here, students turn in a three-page extended abstract of a research project, and we run two sessions or workshops critiquing students' writing, including organization, style, logical content, and mechanics. After these two sessions, we move into editing, where we have two presentations on common errors in engineering writing, such as confusing passive voice, run-ons, and fragments. The third section of the class is devoted to presentations. In this section, students will view a presentation on technical presentations and will then deliver their own 15-20 minute presentation on their research, with 10-15 minutes for a critique of each student's presentation.

These three sections of the graduate seminar will introduce graduate students to some of the more advanced writing issues without requiring a lot of time or outside work. By dividing a one-hour class into three sections, we have been able to cover a lot of ground in minimal time.

Conclusion: Further Work in Communications

Even though all faculty members agree that communications should be an important part of the engineering curriculum, the biggest challenge in implementing our communications program has been convincing faculty members to use writing and presentations in their courses. Many faculty insist that ENGI 2304: Technical Communications should "take care of communications," so there is no need for them to incorporate communications into their existing courses. Such a view demonstrates a disconnection between communications and engineering, as it communicates that writing and presentations are not actually a part of engineering work. Many faculty are open to using writing and presentations in their courses, and some have been so for a long time. Others, however, do not wish to devote their time in and outside of class to teaching and grading writing. Some faculty members may lack confidence in their own writing abilities and may be unsure how to assess writing and communications. We are currently

attempting to remedy these problems through developing grading rubrics for typical assignments in engineering. These rubrics should speed up grading and allow faculty members to point to specific criteria for grading assignments.

Even with all of the work that has been done in the Cullen College of Engineering, there is still much to do in the area of communications instruction. After we identify four-to-five courses in each department and designate them as writing intensive, we will have to work on standardizing a curriculum, both within each department and within the College as a whole. Plans are to offer grading criteria for various documents to aid instructors, to offer help creating assignments, and to begin using Writing Consultants from the Writing Center within each class. We continue to pursue our goal of producing graduates who are proficient in both engineering and communications.

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Paul Ruchhoeft joined the faculty of the Department of Electrical and Computer Engineering at the University of Houston in 2000 as a Research Assistant Professor after receiving his BSEE from the University of Texas at Austin and his MSEE and PhD from UH. He became a tenure track Assistant Professor in 2001. His research interests are in the areas of nanolithography and nanofabrication. He began teaching the capstone design course in 2001.

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Ross Kastor is a lecturer in the Department of Mechanical Engineering at the University of Houston. He has been teaching the capstone design course since 1991. He worked more than 40 years as a drilling engineer for Shell Oil Co., where he taught drilling engineering for 16 years. He majored in machine design at Ohio State University where he received the BSME and MSME degrees. He is a registered professional engineer in Ohio and Texas.

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Richard Bannerot is a professor in the Department of Mechanical Engineering at the University of Houston. His research interests are in the thermal sciences and in engineering design education. For the past thirteen years he has taught the required "Introduction to Design" course at the sophomore level and has recently been involved in teaching the capstone design course. He is a registered professional engineer in the state of Texas.

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Colley Hodges is the Program Manager of the Writing in the Disciplines (WID) Program at the University of Houston Writing Center (UHWC) and holds B.A. (summa cum laude) in Creative Writing from UH. He works with faculty of various colleges to help integrate writing instruction into their courses and articulate effective solutions to address student writing needs.

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Elena Poltavtchenko holds an M.A. in Applied English Linguistics from the University of Houston. In Fall 2003, she taught junior-level Technical Communications class (ITEC 3663) in the UH College of Technology. In Spring 2004, she became involved in the Writing in the Disciplines Program as she led the writing workshops for the senior-level Engineering Capstone Design class and has continued to do so. In Summer 2004, she became the Writing in the Disciplines ESL program manager.

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