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Writing Self-Assessment for First-Year Engineering Students: Initial Findings

Chris Leslie, Elisa Linsky, Gunter Georgi

Polytechnic University

Seeking to understand what and how students are learning about writing in its first-year engineering course, we have implemented an assessment project for Polytechnic University's core engineering course. Building on an innovative Writing Consultant program that already was implemented for EG 1004, Introduction to Engineering and Design, the assessment project draws several projects from English composition instruction to improve the communications skills of engineering students. Through the generous support of the Engineering Information Foundation (EIF), we were able to develop the program and implement it in three sections in the Fall 2003 semester, providing valuable insights into the assessment process and this project in particular. The project has continued in Spring 2004, expanding its scope and building on the lessons learned from the fall. This interim report describes the original conception of the program, the results obtained in the fall semester, and presents the improvements made to the project based on those results. The project was successful in creating a dialogue between students and instructors, and among instructors, about the assessment of writing. This dialogue allowed instructors to quickly correct student misconceptions, gave students a critical standpoint for evaluating their own writing, and offered them a forum to discuss their writing issues in a nonthreatening setting before getting a formal grade on a report.

A. Introduction

Starting with the assumption that students need to know more about writing than what information belongs in what section of a lab report, this program asks students to become involved in assessing their own work. We chose this approach because it leads students to approach writing as an apprenticeship in a larger community of scientific writers, instead of writing reports as a classroom exercise. The traditional grading of lab reports tends to focus on mechanical aspects of writing, such as grammar and format, leaving equally important issues such as logic and reliability to be neglected. This approach results in empty reports, where student simply follow a formulaic pattern to fill up the pages of the report without considering how the parts fit together. For students who are learning English as a second language, traditional instruction leads them to believe that matching nouns and verbs is more important than proving a scientific argument. The approach we describe in this paper encourages students to examine the process of technical communication, express the design principles behind their work, and consider how to communicate effectively.

Evaluating student writing is a difficult proposition. In the case of lab reports, even if one develops a clear set of criteria, different evaluators can disagree on how well a report meets the criteria or how important each criterion is to the overall score. This process is complicated by the fact that students do not always write with a full understanding of the goals of each project, completing the assignment but missing the point. In the case of grammar and usage, the means used to assess learning influences the outcome. Students who score well on a quiz about comma splices, for instance, may not be able to avoid them in their own writing; conversely, students who never commit a comma splice may not be able to answer questions about them on a test. Finally, evaluation is difficult because when students learn writing lessons they are not always immediately able to capitalize on them. A cursory understanding of sentence boundaries gained in one class may not lead to a marked improvement that semester in writing, but it sets the stage for independent learning and is a necessary prerequisite for future expertise; as students read and write in later classes, they need that cursory understanding to deepen their awareness and become expert writers.

For these reasons, a strictly quantitative assessment program is distracting. While it might seem desirous to develop tools that "measure" student learning, such tools fail to accurately measure actual learning. Furthermore, they give instructors a false sense of being informed about their students; they would think that the data provided them an accurate picture of how their students' writing is improving. Even worse, quantitative tools tend to have a negative impact on instruction, leading students to believe that writing instruction is a formulaic process related to the completion of technically accurate sentences with no accumulative meaning (which they feel they cannot do; one reason why they will say that they prefer science) rather than the mastery of the communication situation (which is something they may not have considered, but is something that they can do if we ask them). Although strictly quantitative measurements are administratively convenient, it is an assumption of this project that they are the wrong way to assess student writing.

With support from a grant from the EIF, we are investigating a means of evaluating student writing that can be more authentic than quantitative measures. Instead of finding a way to measure such nebulous characteristics as "quality," we seek instead to teach students to evaluate their own writing. If they can learn better the qualities that make a good report, we assert, then the educational goals of the program will be better met and students' writing will improve markedly in the long run. By inviting students to take an active role in assessing their own work, the program requires them to become active learners. Instead of passively absorbing information and waiting for a grade to judge their product, a self-assessment program prompts metacognitive awareness, helping students to know not only what they should do but also why they should do it. Work on this project is ongoing; this report seeks to provide an overview of a program that involves students in the assessment program for EG 1004.

Even though we are not using quantifying measurements to determine student writing improvement, knowing how students are doing is a requisite of an assessment program. We have designed a program that uses techniques from composition instruction in an online format to help students assess and practice their learning in a low-risk environment separate from their larger writing projects. The use of the online format facilitates communication between students and the writing instructor, helping instructors to know what lessons have come across and what

lessons need further reinforcement. Working in conjunction with a short classroom contact with students every week when the course meets, this program benefits both students and instructors. Students have an opportunity to objectively view performance standards, practice techniques to meet those standards, and seek additional instruction when they are uncertain about a lesson. Instructors benefit from the program as well; they know for sure how well a lesson has come across to students, feeling confident that their work is having its intended effect.

One of the greatest benefits of the assessment program is its flexibility. Students come to EG 1004 with varying degrees of preparation and willingness to participate. Some students are accomplished writers, and their skill sets include advanced knowledge of expository forms and persuasive language. Other students, unfortunately, do not have extensive writing skills, making basic writing instruction necessary. An entirely different problem is the degree of course compliance. Some students feel writing is an important aspect of engineering and therefore bring to their assignments a great deal of energy; for other students writing is not part of their idea of what engineering is so they feel any writing instruction in gratuitous. One way to deal with this variety of students would be to segregate them into separate sections, but to do so would limit their ability to learn from each other. Another solution is to use methods of instruction that do not require students to be all at the same place in their writing ability. This assessment program is one such solution. It allows students who need or want additional instruction the means seek it out, while it does not overburden students who do not need it or find it to be something that they cannot take seriously.

The first semester's implementation of this project in a limited pilot test led to some information that points to the program's effectiveness, insight into student behavior, and significant lessons learned for future implementations. Students who were involved in the assessment program were more likely to know how to complete formal aspects of report writing. Students in these courses were motivated by a need to be competent professionals, indicating that we should continue to present writing lessons that emphasize professional skills (such as software documentation and project proposals). Future work for this project would include a ramp-up to a larger implementation and the implementation of a follow-up study to determine how well writing lessons are carried into future courses.

B. Description

In conjunction with EG 1004, Polytechnic University already has a writing instruction program that assists students in the completion of written reports. Engineering professors run the course, and teaching assistants help run the class and grade student work for technical content. Each section of the course is also assigned a trained writing consultant who is responsible for the writing portion of the course only. These writing consultants present short lessons on writing at each week's recitation and grade student reports for writing style. The writing consultant's grade on written assignments counts as a portion of the student's final grade. This program is valuable because it provides students with much-needed instruction to improve their communications skills. The assessment program is designed to assist writing consultants in their mission.

The assessment project has four main components: an entry and exit skills survey, weekly "one-minute" papers, a midterm portfolio with rewrite option, and a midterm evaluation. Each

component is designed to increase students' self-awareness at the same time serve as a tool for instructors to assess students' understanding of course materials. In addition, the program is designed to be as unobtrusive as possible. Students in EG 1004 are already saddled with a great deal of work, so the last thing we want to do is add to their burden. In these assignments we seek to create brief periods of self-reflection to aid students in apprehending writing lessons, not additional writing practice. Where possible, these projects (in particular the "one-minute" papers) are conducted in electronic forums accessible to all students so that they can learn from each other's insights.

The first semester, we ran the assessment project in three sections. In order to simulate a coursewide rollout, a writing consultant who was not familiar with the program was asked to run the program in his own section. In addition, one section was monitored but did not participate in the assessment activities to serve as a control (see Table 1).

Table 1: Components of Assessment Project

	Section C	***Section D***	***Section E3***
Writing consultant	Volunteer	Same as Section C	Assessment developer
Enter/exist skills survey	Yes	Yes	Yes
"One-minute" papers	No	Yes	Yes
Midterm portfolio	No (but labs reviewed by team)	Yes	Yes
Midterm evaluation	Yes	Yes	Yes

1. Enter/Exit Skills Survey

Students' skills were surveyed twice: once on the first day of class before any presentations by the writing consultant and once on the last day of class before the final presentations. The survey (Attachment A), on two sides of one sheet of paper, consisted of eight short answer and multiple choice questions that involved students' awareness of professional writing genres, scientific writing in general, and related grammar and format issues.

The survey would seem to monitor student learning in the course. While it does have this purpose, it also helps to remind writing consultants that all students do not come to EG 1004 completely unprepared. In addition, it helps set the purpose of the writing instruction: writing consultants are not simply the grammar police, but are instead interested in helping students to communicate technical information effectively.

2. "One-Minute" Papers

As the name indicates, the "one-minute" papers are short responses to writing prompts from the writing consultant. The first "one-minute" paper asks students to reflect on the results of the

entry skills survey, the aggregate results of which were provided to each section. Additional "one-minute" papers ask students to reflect on the reasons behind writing lessons and to speculate on the effects of different approaches to writing. "One-minute" papers are tied to the weekly lab report, and 5 percent of the student's grade on a lab report is awarded for completion (correct or incorrect) of the "one-minute" paper before the lab report is submitted.

Inspired by the format of focused writing being promoted in general composition instruction, the "one-minute" papers ask students to reflect on writing lessons. They help to reinforce the purpose of the writing consultant presentation, and provide a way for instructors to assess whether the lesson has come across correctly.

3. Midterm Portfolio

This project (Attachment B) asks students to assemble their best and weakest lab report and respond briefly in writing to the reports' efficacy. It also gives students an option to rewrite their worst lab report based on the writing consultant's comments if they desired. The assembly of the portfolio counts for that week's "one-minute" paper, and the rewritten paper (if submitted) is regraded and the higher grade recorded in the grade book. Each writing consultant chooses two representative portfolios from each section for review in a staff meeting with engineering professors, teaching assistants, and writing consultants where the reports' quality are discussed.

The portfolio project is designed to encourage students to review their own writing and reflect on what makes a good report. While we as writing consultants are constantly evaluating students' writing, this is not something they are used to doing. In addition, we hope that the portfolio project will inform students about the importance of revising their work; while many are familiar with the idea of proofreading, few consider how a few minutes spent on reworking their drafts can yield great improvements.

4. Midterm Evaluation

This survey (Attachment C) is a list of fifteen items given to all students, who rate each from 1 to 5 based on their perception that it is improving their communications skills. Items range from procedural aspects of the report-writing process (receiving a rubric and sample materials), consultations with the writing consultant and teaching assistant, to working on the portfolio and completing the "one-minute" papers. Comments are invited on each item, and students are encouraged to list ways in which the course is improving their writing that are not included in the survey. At the end are two open-ended questions about the writing process.

This survey has two purposes. One purpose is to give writing consultants an idea of what is happening in their sections. The other purpose, just as important, is to put in front of the students a list of ways in which we are trying to improve their writing. This helps to make the writing consultant program more obvious, making the students realize that the simple completion of writing assignments is only part of the course.

C. Results

Preliminary results of the assessment program were encouraging. Students participated in the components with a minimum of difficulty. A minimum of students responded with antagonism to some of the assignments, but the effect was to remind the writing consultants that not every student finds writing an enjoyable task and that some would much rather be spending their time elsewhere. A good deal of previous preparation for the course was demonstrated by students, and students in the control section showed a lower improvement in their attitude toward writing and less apprehension of writing lessons.

1. Entry/Exit Skills Survey

From the start, the skills survey proved to be a valuable source of information. More than one-half of the students had some exposure to writing lab reports for high school physics or chemistry class before they entered the university. In addition, students were able to get about one-half of the information into the correct sections of a lab report before beginning the course. A very high number of students reported that they felt communications skills were important to engineers, which came as a surprise to the assessment team. Students were generally unfamiliar with the ideas of passive voice, significant digits, and presentation of data.

As demonstrated in Table 2, by the end of the course students in the control section were less aware of the types of technical communication that they learned (question 1). In addition, while high to start, showed that their attitude toward communications skills showed less improvement than the assessment project sections (question 5). Section E3, which had a "one-minute" paper relating to the presentation of technical data, showed a much higher improvement as compared to the other sections (question 8).

Table 2: Change From Entry To Exit Survey

	Section C (Control)	*Section D (Volunteer)*	*Section E3 (Developer)*
1. Number of types of technical communication	+0.4	+1.8	+0.9
2. Where does information belong in a report?	+4.2	+3.1	+2.3
3. Reason for report format	Most report that it helps the report to be written more easily.		
4. Purpose of a report	Placed "show teacher experiment was correct" and "describe ways to complete" close to top	Placed "show teacher experiment was correct" and "describe ways to complete" close to bottom, preferring "present learning" and "plan for future work" higher.	

	Section C (Control)	*Section D (Volunteer)*	*Section E3 (Developer)*
5. Importance of communications skills	+0.1	+0.88	+0.57
6. Passive voice	+30%	+5%	+21%
7. Significant digits	-3%	+8%	+35%
8. Presentation of data	-0.2	-0.5	+0.8

One surprising result of the evaluation questions at the end of the report were the popularity of technical report projects in the course. A large number of students reported that the course related directly to their major and their career goals because they predicted that they would have to engage in a great deal of communication in their careers. A sizeable number also mentioned that what they learned from the course was that engineers needed to write much more than they had ever imagined, and they did not know that there were so many different kinds of technical communication. Clearly, one of the aspects of the course elucidated by this survey was the extent to which we can be perceived to be a valuable part of their education. As students who are unfriendly toward writing, this insight is invaluable. Had instruction in grammar and punctuation taken place in a traditional humanities course, one would wonder if their interest would have been as high.

2. "One-Minute" Papers

Due to an access problem, writing consultants were not able to administer the "one-minute" papers via the course's Blackboard site until after midterm. This led the writing consultant in Section D to administer this component in class on paper. The writing consultant in Section E3 administered this component via e-mail for the start of the course. These workarounds were effective but did not allow for communication between students. An additional difficulty was that the volunteer writing consultant reported that he was unsure about the purpose of the project, which may have led him to treat the project more like a test than a communication opportunity.

One of the greatest successes in the "one-minute" papers was one that sought to prepare students for the final proposal for their independent semester project, which is supposed to be a persuasive document. This "one-minute" paper asked students to identify a common product, describe its features, and explain the benefit it confers to the consumer. This project was designed to direct students away from proposals that were simply descriptive in their approach and instead begin to think about how they might sell their ideas to a client.

After a short presentation in class about persuasive language, students submitted their "one-minute" papers using Blackboard's discussion board feature. The first few students who responded, as was expected, simply described the features of the project. At this point the writing consultant entered the discussion and praising the descriptions but explaining that the part of the assignment was to hypothesize for the consumer what benefits the product would confer. Subsequent posts tied many features into many benefits, which was a significant improvement but was unfocused. After a second post from the writing consultant, praising the benefits but noticing the unfocused nature of the posts, two of the remaining students were able to provide focused posts that described the features and the benefit they confer. While not every student was

able to get the point of the exercise right away--after all, it is not a simple thing to do--through the group process the class as a whole was able to see an appropriate response and understand the complexities of obtaining one.

We found an unexpected result of the "one-minute" papers in the section where the Blackboard discussion board was utilized. On the board, separate folders were set up for each paper, and general folders were created as well that solicited input from students on areas of the writing component they did not understand and questions about writing reports. When these general folders were established, several students availed themselves of the opportunity to question the writing consultant on a variety of topics, from how to achieve an objective tone to how to capitalize a title. This simple mechanism proved to be a valuable communication tool, and allowed the writing consultant to further assess his students' understanding and modify his instruction accordingly.

3. Midterm Portfolio

The opportunity to revise a report was a successful component of the assessment program. Several students noted in surveys that this was the first time they had carefully considered the written comments from the writing consultant. They appreciated the opportunity to learn from their errors, and benefited from using their experience of writing five lab reports to revise one from earlier in the semester.

A number of students did not complete the portfolio. While this was disappointing, some found it difficult to gather the necessary materials and submit them, even when granted an extension. This was unfortunate, but did not result in large negative impact. They lost five points on the associated lab report, and while they did not get a chance to improve their lowest lab report, they did not receive a significant negative impact for failing to complete the report.

One interesting phenomenon observed in this aspect of the program was that the students who wrote the best reports tended to put the greatest effort into the portfolio project. Students who were struggling with basic language skills showed a great attention to the portfolio as well. The ones who responded poorly to the portfolio were those who demonstrated a negative attitude to the communication component of EG 1004 in other areas.

In the assessment meeting, the writing consultants briefly presented the best and worst reports from their sections to the group. We discussed what makes a good report, and offered each other ideas on how to improve those who were struggling. One particular discussion was the efficacy of written comments; while not directly a portfolio issue, this issue was important to those who attended the meeting. In addition, we discussed the objectives and mechanics of the "one-minute" paper. Thus one of the beneficial aspects of the portfolio process was a reason and a forum for instructors to trade information about their sections and to discuss techniques they find useful in instruction.

4. Midterm Evaluation

One surprising result of the midterm evaluation was that the different sections showed varying preferences for different aspects of instruction. In general students highly valued receiving written feedback from the writing consultants, which is a time-consuming aspect of their job but apparently valuable. The students also valued personal discussions with the writing consultants, leading us to believe that making ourselves more available and encouraging students to discuss their reports with us would be valuable.

Two interesting results related directly to the assessment project, specifically the portfolio and the "one-minute" papers. The comments on these items showed students had very strong opinions both in favor and against these items, but over all they rated them lowly. Some students noted that the "one-minute" papers helped focus their attention on the lab reports or aspects of writing that were important; others mentioned that they found it difficult to remember to complete them on time. Students in Section D noted that the "one-minute" papers would add stress to the class, which was an unusual response given that students in that section were completing them during class time. Several students found the portfolio project to be worthwhile, and liked to review their improvement over time and to have a chance to capitalize on their learning. Overall, however, this item was one of the least favorite items in the class.

This mixed result points the vexing nature of using student satisfaction to guide course development. One problem demonstrated is that students have varying responses to course objectives, and some students may get the most out of assignments that others find to be tedious. In terms of feedback, however, this information was invaluable. Coming at midterm, it allowed writing consultants to reevaluate their approach to their teaching methods, indicating that certain aspects of the course needed to be "sold" better to the students. In addition, it demonstrated that there may be a problem in understanding what are the names and purposes of varying assessment components; this will certainly improve in time as writing consultants become more proficient in the program but perhaps could be helped from greater direction from the assessment coordinator.

D. Suggestions for Future Implementation

Although this program is still only in its rudest stages, its success has encouraged us to further refine it and expand it for the spring semester. Six areas of improvement are of the highest priority:

1. Procedure

Several ideas in procedure were apparent once the program was tested. Firstly, the portfolio was an effective learning instrument and should be offered earlier in the semester so that students can use the expertise they develop from rewriting in more of their reports. While it was assigned after Lab 6, it would probably be better after Lab 4. In addition, the last day was a tense one for students because they had to give their final presentations. They were not in the right frame of mind to take a quiz. Perhaps the exit skills survey could be offered as part of final exam.

2. Paperless Implementation

Opportunities for paperless implementation, especially in the portfolio, will be explored. Section E3 did use the Blackboard Quiz feature once Blackboard was made available to the writing consultants. These quizzes could be set up in advance for all writing consultants to use when ready. In addition, the use of Blackboard's Dropbox or Assignment feature should be explored in order to collect the items of the portfolio; the shuffling and distribution of paper copies was an added burden for the writing consultants.

3. Communication

One of the successes of the Writing Consultant program in general is that it provides a set of ready-made assignments and lessons that instructors can use depending on the needs of the particular section. The assessment project has tried to build on this principle, but could do better by providing additional one-minute papers for writing consultants, and adding detail to the suggestions so that writing consultants would know the purpose of each assignment. In addition, an assessment handbook might be useful for individual instructors who might think that this is a testing tool, not a communication tool. This could provide tips on how to effectively use the assessment program to gain feedback from students.

4. Additional Drills

Online drills for each minilesson should be created and tracked as part of the assessment program. One of the original components of the writing consultant program was a series of practice questions related to the minilessons. Unfortunately, due to the short time allotted to each writing consultant, these questions are only sporadically used in class. Review questions are, however, a useful way to reinforce the writing consultant presentations. Along with the sample lessons provided to the writing consultants, the assessment project should present online assessment modules in Blackboard for writing consultants to use. It would take some time to develop modules for all of the minilessons, but a goal of the project should be to have online modules for all minilessons ported via the generic Blackboard site to all EG sections.

5. Tiered Writing Lessons

One of the benefits of this program is that it can be tailored to individual student needs. For instance, the entire section might be presented a lesson on complete sentences. Some of the students already know the material, and others will pick it up quickly. However, there will be a few who have difficulty mastering the lesson right away. When the online assessment modules are created, they should keep in mind that a particular student may not "get it" the first time. Therefore, there should be several rounds of questions for each lesson, so that a writing consultant can review wrong answers with students and suggest (but not require) that they attempt the next set of questions in the minilesson.

6. Engineering Communication Emphasis

The structure of the course conspires against this project in some ways. While project was successful, many students' preconceptions about the course limited their ability to learn. When students see a course divided into labs, they automatically assume that it is a science course. They are concerned with presenting results of an experiment, as if it were a physics lab, even when the lab explicitly asks them to consider the impact of scientific information on design decisions, which is the goal of an engineering lab. Thus the design side of the labs is often neglected in favor of the results side: making a robot that works is considered to be more important that making a robot that is designed well.

While this might not seem to be a writing problem, this preconception results in reports that are descriptive without actually demonstrating engineering information--and in the case of the final project, a proposal that is descriptive without being persuasive. As the results of the exit survey have shown, the nonlab writing assignments in EG 1004 have gone a long way to demonstrating to students that writing can be a fundamental aspect of engineering. However, the idea of filing weekly lab reports reinforces the prejudices of students, making them believe that they are in a science course.

There is no reason to get rid of the lab reports; they are a valuable writing experience for students. It would be valuable, however, to ask students to approach them in a different way. The assessment project must emphasize the engineering aspects of the writing assignments over the nontechnical aspects, and traditional writing topics must be approached with technical communication in mind. For instance, in discussing paragraph development the writing consultants should use the explanation of design decisions as an example. "One-minute" papers that utilize such an approach will be developed.

CHRIS LESLIE, a graduate student in the English Program at the City University of New York's Graduate Center, is a Writing Consultant and Adjunct Professor of Humanities at Polytechnic University.

ELISA LINSKY, director of Polytechnic University's Technical Writing Program, is coordinator of the Writing Consultant program for EG 1004. She is the co-author of the grant which supported this project.

GUNTER GEORGI**,** Industry Professor at Polytechnic University. He received his BS from Cooper Union and his MS and professional M. E. Degrees from Columbia University. He is a registered Professional Engineer. He has worked for many years in the aerospace industry in design, analysis and management functions, including Thermal Mission Analysis of the Lunar Module from Apollo Project.

Attachment A: Exit Skills Survey

Fall 2003 Name: _____ Section: _____

This survey is designed to help writing consultants to gauge the effectiveness of the writing portion of EG 1004 with an eye to next semester. Your careful completion of the following questions will help improve the program, but your responses will not count toward your grade in any way.

1. What types of technical communication (written or oral) are you now familiar with, such as lab reports?

Type	*Description*
1.	
2.	
3.	
4.	

2. EG lab reports are divided into five standard sections: Abstract, Introduction, Procedure, Observations, and Discussion/Conclusions. Circle in which part each type of information should appear. Chose the last column if the information does not belong in a scientific report.

	Abstract	Intro.	Procedure	Observation	Conclusions	Does not belong
1. A brief statement of the result of the experiment	A	I	P	O	C	NA
2. Ideas how the experiment could be conducted better	A	I	P	O	C	NA
3. Data that does not support the hypothesis	A	I	P	O	C	NA
4. The scientific principles needed to understand the results	A	I	P	O	C	NA
5. How did you feel when you conducted the experiment	A	I	P	O	C	NA
6. Real-life examples of the scientific principles	A	I	P	O	C	NA
7. The steps needed to complete the experiment	A	I	P	O	C	NA
8. A verbal description of what the experimenter saw	A	I	P	O	C	NA
9. A table summarizing the results	A	I	P	O	C	NA
10. Library research into similar experiments	A	I	P	O	C	NA
11. A description of how you arrived at your results	A	I	P	O	C	NA
12. A description of the formulas used in calculations	A	I	P	O	C	NA

3. Why are scientific reports divided into separate sections, like those in question 2? _____

_____

4. What is the purpose of a scientific report? Rank in order of importance, with 1 being the most important. If an item does not belong in a scientific report, do not write a number.

__. Present results to the scientific community.
__. Show teacher that experiment was done correctly.
__. Describe different ways experiment can be done.
__. Explain what you learned in experiment.
__. Present a plan for future work.
__. Other (please specify) _____
_____

5. How useful are communications skills (writing and speaking) to engineers?
   A. Important if you want to be a scientific writer, but for regular engineers communications skills are as useful as shoes for a fish.
   B. Of limited use, so that engineers do not embarrass themselves when writing application letters and filling out forms.
   C. As useful as other support skills, such as using Microsoft Word or Excel, so that engineers can get their office work done.
   D. Less useful than engineering content, but more useful than other support skills, such as using Microsoft Word or Excel.
   E. As important as learning the content of engineering.

   Comment: _____

   _____

6. Which sentence is written correctly in the passive voice?
   A. The team was designing a robot with infrared sensors.
   B. A robot with infrared sensors was designed by the team.
   C. The team designed a robot with infrared sensors.
   D. A robot with infrared sensors were designed by the team.

7. Which row is written with the most accurate number of decimal places? (Note: rate = distance ÷ time.)

	Distance (m)	Time (sec.)	Rate (m/sec.)
____ A.	2.0	16.5	0.12
____ B.	2.0	17.7	0.1129943
____ C.	2.0	13.2	0.15151
____ D.	2	15	0.13

8. Sketch a line graph of the following data that could be used in a scientific report. Plot the time along the x axis and the weight along the y axis. Include all necessary labels.

Degradation of sample material	
Time	Weight
0	4.0 grams
1 hr	4.0 grams
2 hrs	3.8 grams
3 hrs	3.2 grams
4 hrs	2.8 grams

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9. Circle the number that indicates your communication learning in the course, with 1 meaning that you possessed the skill before the class and 3 meaning you did not have the skill at all. If you do not think the skill should be a part of an engineering education, circle "X."

EG should help me …	Already had	Somewhat had	Did not have	Do not need
1. Use Microsoft Word to create a written report.	1	2	3	X
2. Write up the results of an experiment in good English.	1	2	3	X
3. Write a logical report that proves a scientific point.	1	2	3	X
4. Use Microsoft PowerPoint to create a slide presentation.	1	2	3	X
5. Make a presentation in good spoken English.	1	2	3	X
6. Confidently make a presentation to a live audience.	1	2	3	X
7. Write instructions to help others use software.	1	2	3	X
8. Persuasively explain a design solution to a client.	1	2	3	X
9. Function on a team to produce a written report.	1	2	3	X
10. Other (please specify)	1	2	3	X
11. Other (please specify)	1	2	3	X

10. Using the items in Question 9 as a guide, please assess the effectiveness of the writing component of EG 1004. What were the main benefits of taking the course? How could the course be improved?

_____

_____

_____

11. Were the writing assignments relevant to your major and/or planned career? Why or why not? _____

_____

_____

12. Did the writing assignments change your understanding of engineering or computer science? How? _____

_____

_____

13. What have you learned this semester about writing? _____

_____

_____

_____

Attachment B: Midterm Portfolio Assignment

The midterm portfolio is a chance for the writing consultants to determine how well each section is achieving course goals. As part of this process, students reflect on their work as a whole; in the end, they will get feedback on their general product. Since the portfolio includes a rewrite option, there is also an opportunity for students to improve their grade. Please assemble the following materials in a folder and present them to your writing consultant on the date due.

Portfolio Contents

1. Your best lab report/documentation:
    - Submit the graded copy.
    - Attach a 100 word self-evaluation that explains why it is the best.

2. A weak lab report/documentation:
    - You may rewrite according to best practices and include outside research if you like.
    - If you rewrite, submit the graded version with the new version.
    - Attach a 100-word explanation of the weakness and (if you rewrite) a description of your improvements.

3. Survey:
    - A quick survey on the back of this sheet asks you to consider how EG is helping your writing skills.
    - Please explain how the items are helping, or how they could help, improve your skills

Attachment C: Midterm Evaluation

Fall 2003 Name: _____ Section: _____

What aspects of EG 1004 are most improving your communications skills? Please rank each item from 1 to 5, with 1 meaning that the item greatly helped improve your communications skills and 5 meaning that the item did not help at all. If an item did not apply to you, circle "N/A" for not applicable. Please comment on how the item helps or fails to help.

	Greatly helps				Does not help	
1. Receiving the rubric (grading criteria) for lab reports *Comment:*	1	2	3	4	5	NA
2. Reading the explanation of lab reports in the manual *Comment:*	1	2	3	4	5	NA
3. Reviewing sample documents *Comment:*	1	2	3	4	5	NA
4. Consulting with the WC about lab reports *Comment:*	1	2	3	4	5	NA
5. Consulting with the TA about lab reports *Comment:*	1	2	3	4	5	NA
6. The weekly minilesson from the Writing Consultant *Comment:*	1	2	3	4	5	NA
7. Taking notes while conducting lab experiment *Comment:*	1	2	3	4	5	NA
8. Weekly one-minute papers *Comment:*	1	2	3	4	5	NA
9. Writing independent lab reports *Comment:*	1	2	3	4	5	NA
10. Writing group lab reports *Comment:*	1	2	3	4	5	NA
11. Reading written feedback from the Writing Consultant *Comment:*	1	2	3	4	5	NA
12. Visiting the Writing Center *Comment:*	1	2	3	4	5	NA
13. Revising a draft for the portfolio *Comment:*	1	2	3	4	5	NA
14. Evaluating work for the portfolio *Comment:*	1	2	3	4	5	NA
15. Special writing projects (software doc., independent project) *Comment:*	1	2	3	4	5	NA

What challenges do you face in writing lab reports? _____

_____

_____

Do you feel these challenges are worthwhile? If not, how could the course be changed to make it so? _____

_____