Technical Writing for Engineers
English 149, Syllabus

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Required Materials & Skills for Class

The Handbook of Technical Writing, 7th edition, St. Martin's Press.
Boston: MA. ©2003. ISBN: 0-312-30923-6.

Access to either a Windows or a Macintosh PC.

Working knowledge of Windows and/or the Mac OS, MS Word (or equivalent), MS PowerPoint, and one graphics development program (i.e. PhotoShop, Illustrator, Corel Draw/PhotoPaint).

Course Objectives & Structure

Basic Skills

To excel at any technical field, you need to be an excellent technical communicator. You must have a solid command of the specifics of your field, certainly, but if you want to have a decent career, and move up in the commercial world, you must know how to write and talk about technology and science with precision, wit, style and power. Excellent technical communication is the structure upon which all technical success is built. This course will teach you many of the skills required of a beginning technical communicator. Besides knowing how to write clearly and accurately, a good technical communicator also must know how to work effectively with others to produce excellent written and visual work. Therefore, this class functions as a learn-by-doing group work environment. Even though much of what you submit for grading will have been produced in collaboration with others, you will individually be responsible in your group for producing and revising at least 6,000 words—most of the documents your groups will produce this quarter will be at least 10-20 pages long.

Applied Theory

You will learn how to write about technical concepts in a manner that not only makes sense to other technologists, but also to audiences ranging from high school students to technical consumers in the world marketplace. We will examine issues of rhetorical persuasion, ethical presentation and emotional engagement (logos, ethos, pathos), and will examine the basics of information design and use. You will work on polishing your prose voice, and will learn how to apply different technical communication styles to different audiences and for different applications.

Community Work

In the past, students in my courses have been compensated financially for what they produce, however, I prefer that you try to work for community organizations that need your assistance but may not have the resources to pay you. I call this kind of work, good-Karma projects. In the past, students have produced good-Karma work for Habitat for Humanity, NASA, Big Brothers/Big Sisters, The Red Cross, Amnesty International, Greenpeace, AA, various US military veteran's associations, and various religious and secular community assistance organizations. By working directly with the community you will learn not only what it means to be a practicing technical communicator, but also what it means to be a supportive part of a diverse but united community.

Course Structure

The structure of this course is simple: in eight weeks you will create, revise and submit two large group projects, three individual projects (two large, one small), and then fully revise, further expand and resubmit your *Technical Solution Proposal* for final review. In total you will work on six projects:

1. **Job Application Project**—resume & cover letter (Individual Project)
2. **Technical Solution Proposal** (Group Project)
3. **Procedural Instructions Project** (Group Project)
4. **Technical White Paper** (Individual Project)
5. **Revised Technical Solution** (Group Project)
6. **Individual Portfolio**—collection of all your individual work for the quarter (Individual Project)

A major project is due every two weeks. At a mid-point during each two-week project cycle, I will review your work, and briefly offer suggestions for improvement before you hand in the final version of your work. During the last week of the quarter we conduct a seminar that allows each group to present the work each group has created during the quarter.

Keeping Up

This class requires a lot of work from the first day of class to the last, but it need not be overwhelming if you keep on task and follow the schedule. You will know all deadlines in advance , and I am often available in person and online to answer questions. If you arrange a meeting with me in advance (either with you in person, or with your entire group), I will gladly review your work-in-progress and offer you what help and advice I can provide before the final due date.

General Information & Pet Peeves

Group Work

This class requires extensive group work just as you would find in a commercial technical environment. There are only a few assignments that require you to work on your own. Much of what you do in this class requires detailed work with at least two or three other people. To mimic a real-world situation, your entire group will be given the same grade for the work you produce as a group. If the group does excellent work, everyone receives an excellent grade. If the final product fails to come together, everyone will share the same failing grade, no matter how much work any individual put into the project. Therefore, it is in your best interest to ensure everyone in your group is taking part in an equivalent amount of work. Assignments must be in my hand (or my email) by the beginning of the class period when they are due. No exceptions or excuses are accepted. If your work is not on time, you will fail that assignment. It is better to hand in incomplete work instead of handing in nothing at all.

Lost Data

I will not be responsible for lost or misplaced assignments. I will also not be responsible for data loss on any digital storage media you submit to me, or for information that seemed to be lost in transit over the Internet. Submit your assignments through email, FTP site, the class Web drop box, or on a CD that contains only a copy of your assignment. If you lose data due to a system malfunction, you should have a backup. I will not accept system failure as an excuse for a missing assignment. Also, please be sure you remove any detected viruses from **every** electronic file you submit to me online or on a CD.

Submitting Work

I will not accept hand-written work. Everything must be submitted in a professional manner: produced on a computer with a word processing program. I encourage everyone to work with the latest version of Microsoft Word (either Mac or Windows OS) so you will all be able to share work. I suggest you have all your disks preformatted for Windows (IBM format).

Assistance

If you have trouble with any assignments, or with anything related to this course, please do make an appointment to see me. I will gladly answer your questions by email throughout the week**.** If you send me written work you would like me to review, be sure to ask specific questions about your writing instead of simply asking "what do you think?"—the more specific your questions, the more precise and helpful I can be with my responses. I will respond to your email within 12-24 hours during the week, but I do not respond to email during the weekend. I will not help you with a written assignment over the phone.

Attendance Guidelines

If you miss **three or more** classes during the quarter, for any reason, you will fail this course, regardless of how well you are doing on other work. If you do need to miss a class, be sure you not only notify me in advance (by email) but also notify the members of your work group. There is, however, **one** exception to this rule. If you are a member of a Cal Poly sports team or an official Cal Poly organization that requires you to travel for a competition, conference, or off-campus meeting, and this takes you away from Cal Poly on a day when we have class, I will not count that absence against you. However, you need to provide me (well in advance of the absence) an official letter from the Cal Poly organization that excuses you from attending classes for that day. However, if you are on campus, and some Cal Poly group meeting (practice, conference, presentation) conflicts with class time, you still are required to attend class.

General Cal Poly Grading Standards

The Cal Poly catalog lists the following standards for grades.

Note: *By these standards, C is truly an "average" grade.*

A	Superior attainment of course goals
B	Good attainment of course goals
C	Acceptable attainment of course goals
D	Poor attainment of course goals
F	No attainment of course goals

Detailed Course Grading Standards

Note*: It is difficult and rare to receive a full A in this course.*

A — Excellent work overall. Obviously well conceived and descriptive. Technical objectives are clearly and convincingly stated. Excellent background material clearly frames and introduces the subject. Technical content is logically stated and organized, and clearly supports the overall objective. Data and descriptions are clearly separated from interpretations. Content is detailed and suggestive. Conclusions are well supported by data. The overall presentation shows a high level of understanding and perspective. The work is easy to read. Exhibits a clear sense of unity and purpose. Contains no major and very few minor grammatical or technical errors. Graphics are highly informative, clearly designed and easy to interpret. The excellence demonstrated with the student's work and forethought is of such high caliber that the student could probably teach a related portion of the course.

B — Work presents content clearly and displays a firm grasp of the technical material but without as much focus and in-depth perspective as "A" work. Technical materials are presented logically with perhaps a few minor lapses in clarity and transition; still, they are well organized, thoughtfully conceived, and avoid generalizations. Most of the work is clearly written and adequately detailed; some sections may be awkward but not unclear. Successful effort is evident throughout. No major grammatical errors; some minor grammatical errors but none that disrupt an easy reading of the work. Graphics are informative, intelligible, and support the content. The skills demonstrated with the student's work and forethought is of such high caliber that the student is clearly well above average and in the upper 10% of her/his class.

C — Displays a reasonable grasp of the technical content but little independent (original) thought. The work may be precise and accurate, but does nothing special, nothing out of the ordinary. Includes wholly extracted sections of content from research texts or handouts. Treatment of the topic is general and lacks detail. Some lapses in clarity and focus; perspective is mostly observational. Technical content only casually supports conclusions. Adequately organized. Some major grammatical errors ors are easy to find in the work. Graphics do not clearly support content objectives. The work demonstrates that the student is paying attention, doing what is basically asked of him or her, but not much more.

D — No vision or thought evident. Weak grasp of technical content. No identifiable effort in the description or analysis of technical content. Little or no perspective or detail on the topic and includes many sweeping generalizations. Frequent major and minor grammatical errors; poorly organized. May be reasonably well written but with no grasp of technical content. Graphics are poorly designed and do not support the content of the work. The work is of such poor quality that the student would be embarrass ed to show it to a potential employer.

F — No sense of technical unity or understanding of technical content. May be completely off-topic and shows no understanding of purpose. Work may be entirely unreadable or have frequent major errors. May be reasonably well written but displays a flagrant lack of concern for or misunderstanding of technical content. Relevant graphics may be absent, poorly designed, or unintelligible. Above all else, if the work is late, no matter the quality of the product, it will receive a failing grade.

Assessing Your Final Grade

> Your final course grade will more-or-less consist of the following percentages. Because grading for this course is a subjective, collaborative process based on my holistic evaluation of your work, using a calculator to figure out or argue over the "fine" points of your grade is pointless. The percentages listed below serve as signposts indicating to you what areas you need to concentrate on throughout the quarter. The work you create toward the end of the quarter is counted more heavily than the work you produce early in the quarter—this is an attempt to give you credit for learning and improving as technical communicators, but it also penalizes you if you start to let things slide toward the end of the quarter therefore you need to do your best to keep up with course work.

Half of your final grade depends upon the products your group creates. If your group does well, this is reflected in your final course grade; the opposite also holds true. Obviously, it is in your best interest to be a productive group member.

The following list is a rough approximation of how I assess your final grade, therefore, again, using a calculator to argue about your grades with me will be pointless and extremely counterproductive. If at any time before the quarter is over, you wish to discuss your grades with me, please feel free to make an appointment to talk about why you or your group received a certain grade. These are, however, informational discussions, not debates. I do not change my grades after I have assigned them, but I am always willing to explain them to you.

10% *Participation* (if you miss **two** or more classes, you fail this percentage of your grade—*see exceptions above*—this part of your grade also includes performance small writing assignments and group collaboration— an individual grade)
25% *White Paper* (an individual grade)
40% *All Group Written Work* (except for your final project—a group grade)
10% *Technical Solution Rewrite* (revision & seminar presentation—a group grade)
15% *Final Portfolio* (a collection of all your individual work—an individual grade)

Assignments In Brief

About Grades

For all individual projects, you will receive individual grades. For all group projects, you will receive the same grade everyone else in the group receives. If you do a lot of work, but people slack off in your group, and your group submits a terrible project, then everyone (even you) will receive the same low grade. It is in your best interest to make sure everyone in your group is an active, productive worker so you can all work together to create a good final project. Play to the strengths of your group. Everyone must make a substantial writing contribution to the project, but if someone is great at computer work, let that person take the lead with computer work. If someone is a wonderful editor, let that person lead with editing. You design the work arrangements on your own, and you can shift positions and responsibilities inside a group as often as you wish. But, like a real-world situation, you are stuck with your group until the end of the project cycle so be professional, polite, democratic and fair, and don't let petty personal issues get in the way of your work.

About Memos

I require regular updates explaining how the work in your group is being accomplished. You need to select a group secretary to keep track of your project work for that project's cycle. The secretary is responsible for providing me with a brief memo to accompany every project submission. This memo needs to inform me who did what in each group, identify which parts of the project were written by which group members, detail how many hours were spent on the project, and explain how all group decisions were made. If I don't have this memo in hand when you submit your work, I will not grade the work that your group has produced. Be sure you have your memo to me by the time you hand in your project. Memos can be printed and included with your project, or you can also email them to me the day the project is due. I prefer

email submissions. No memo is required for individual projects because I assume you are doing your own work.

About Forming Groups

You must form a work group to work in during the rest of this quarter on your final project. The group must have at least three members, but no more than five. Once you form this group, you will not be able move to another group if things don't work out. Therefore, it is in your best interest to be a good group member, be cooperative, be flexible, and generally play well with others. If you behave as a professional, and you maintain professional attitudes toward group interaction and organization, you'll do just fine. Once your group is formed and you have settled upon a customer and/or topic for your final project, you need to inform me of this with a memo.

Technology Discussion/Essay

Group Project

This is your introduction to Socratic forms of debate and discussion, followed by the creation of a short, but thoughtful and persuasive essay about technology. This class is built upon the standard rhetorical trident of ethos, logos and pathos. You need to understand how these elements work together as forms of persuasion and construction since I will evaluate your presentation of ethos, logos and pathos in every work you create for this class. We will hold a few class debates about the concept of "technology" and debate the questions: "What good is technology? And what purpose do engineers serve for society?" We will spend time learning how to define terms, and then putting our definitions to use in the construction of persuasive arguments. You will work with a small group (3-4 people) during the debates to construct your point of view and present your arguments. Then, working with one other person, you will write a short 700-1,000 word argumentative, personal essay answering the questions: 1) Why do you want to work with technology? 2) Is technology good? 3) Is engineering destructive? I will not accept paper versions of this essay—you can only submit the work to me as a PDF file, Word document or online presentation (HTML, Flash, etc.). You should submit your work either through email, FTP site, CD, or other reliable digital media format. I prefer to receive your files through email.

Resume, Cover Letter, Analysis & Job Ad

Individual Project

You must create a resume and cover letter for a communication or technical/professional job. You must find an appropriate job, then assemble your application to best present your skills and work history as it would benefit the advertised position. Write a cover letter for the resume, explaining why you are the ideal candidate for the position, and also draw attention to the relevant parts of your resume. This cover letter is an advertisement, a set of directions, and an interpersonal communication. You must also submit a 200-300 word memo of objectives that explains to me how your resume and cover letter have been specifically designed for the job in question; you need to evaluate the visual structure, prose style and information design that underlie what you produced. Finally, you need to attach a copy of the job ad for the open position so I can assess how well your stated objectives coincide with the job itself and correlate with what you have written in your cover letter and resume.

Co-Worker Interview

Individual Project

Choose one or two students in our class to interview. This is not to create a profile for the "Personals" section of the newspaper. You are interviewing classmates as potential co-workers. You will exchange your resumes which you will then use as "scripts" for your interviews. For the purposes of the class, you want to know your subject's name, and contact information. You also want to know what the person is majoring in and what kind of writing-intensive projects this person has worked on in the past. You should ask about computer experience, and computer access outside of class. Finally, and most importantly, you want to know what professional contacts this person has outside of class. Professional contacts could include anything from work with a family businesses, to an outside job, to an internship, or membership in a professional or community organization. Check the accuracy of all the information you gather, write up the results of your work and email your gathered information to the editors of the class directory.

Class Directory

Two Person Project

This is a job for two people—an editor and a publisher. The editor must gather all the information about this class (taken from the interviews above), design a usable directory and make sure the final version of the directory contains no errors. The printer is responsible for putting all the information into the computer, organizing the course information in a format that is easy to work with, and must arrange for distributing the final product to the entire class. This is a great deal of work to be completed in a few days, therefore the two people who work on this project will be compensated. If you both do a good job on this project, you will receive an instant **A** for the course participation portion of your grade, and will also be allowed **two** (2) extra absences from class that you can use at any time (except for anytime during the final project presentations).

Technical Solution Proposal

Group Project

You will choose a problem in the local area (San Luis Obispo, or another Central California Coast community) that requires a technological or scientific solution, and then you will research, create and propose a solution for this problem. You should choose a problem that is fairly straight-forward, and propose a solution that is equally straight-forward. You do not have much time to complete this project so do not choose a problem that requires a full week of research from everyone in your group—choose something that arises from the expertise of the members of your group. This proposal should contain a table of contents, an executive summary (introduction), a historical overview of the problem, a review of the technical specifications required as part of your solution, a detailed narrative of how your proposed solution will be put into effect, and provide a timeline for the solution that indicates starting point, review/evaluation points, testing points, and delivery (end) point. You need to assemble all this information into a clear, precise package with a professional cover, using professional layout and graphics. The final proposal should be at least 15 pages long, but most good, comprehensive technical solution proposals tend

to be longer. You need to submit an electronic version of your work (I prefer PDF), either through email, CD or other reliable digital method. You do not need to provide a final printed copy.

Procedural Instructions

Group Project

You must produce a bound document that contains a cover, a detailed table of contents, and one (15-17 page) section from a set of operating procedures for a piece of technical equipment. You will plan out the documentation for every part of your process, but are responsible for completing the full text for only one section (covering one major software function for example for a piece of software) of your proposed documentation suite.

The readers of your procedures are not technical people or specialists with the technology you're documenting—they are using your documentation for help and advice because they are new to this piece of equipment, technical process or new to this technology. Your final document needs to use some color, have an innovative way of presenting its information (inviting prose voice, attractive color use, new way to organize old information), and you need to produce one printed copy for me and create one copy for everyone in your group. You also need to submit an electronic version of your work to me (PDF), along with the paper version, through email, CD or other reliable digital format.

Technical White Paper

Individual Project

You must research and write a short technical white paper that explains a technical process to a novice in the field who is thinking of investing in a business related to technology presented in your white paper. The white paper should be no more than 2-3 pages long (single spaced, block format, 10pt. font). If you use graphics, your page count will be higher (I do encourage you to include graphics). Your white paper must be based on research from a variety of sources and I encourage you to make interviews a substantial portion of your research. For research, you should use specialist interviews, specialized science/technical journals, or specialist book-length texts for your research, do not make extensive use of general science magazine articles or encyclopedia entries or general audience web sites. You writing also need to be original, so do not simply lift this white paper from a related web site—this will fail you immediately for this assignment. You must submit this to me either through email, CD, FTP site through another reliable digital format. I prefer you save the final file as a PDF to best retain your formatting.

Technical Solution Revision & Seminar Presentation

Group Project

For the final project, you will revisit your Technical Solution Proposal and fully revise your work, making the final work more complete and more appropriately tailored for your given audience and stated purpose. If possible, this revision will be combined with delivering a product for a local customer . Your revised work must be as professional as possible, should not contain mistakes of any kind, and should be ready for a customer to use immediately. The revision should also demonstrate your understanding of and competency

with nearly every skill and theory presented during the quarter. If you are working for a customer, you may make the class deadline for the revision the same date that you deliver your project to your customer; or you can wait until you receive my comments and class review before you hand your work over to the customer. You must submit this to me either through email, CD, FTP site through another reliable digital format. I prefer you save the final file as a PDF to best retain your formatting.

At some point during the last few weeks of the quarter, you will present your final group work to the class. For this presentation you must organize, script and present a 10-15 minute-long presentation in which you talk about the technology that serves as the subject for your final project. Everyone in your group must participate in this presentation and must briefly talk to the class. However, you may have just one person do most of the talking for your group. You need to create and distribute useful handouts, and also use professional on-screen presentation material (PowerPoint, video tape, color transparency, DVD, etc.). You must dress as if you were presenting this information to a commercial customer.

The presentation must give us an overview of the technology that serves as the basis for your work, demonstrate how you solved any problems associated with your project, answer any questions about your project, and solicit suggestions from the audience for possible improvements. Everyone in the audience will grade your presentation on an evaluation sheet. I will collect these sheets, average the scores and then write my own evaluation of your work. The average of the two scores (my score, and the class score) will comprise your final presentation grade. After the presentation is finished, you need to provide me with electronic copies of all your presentation materials which can be submitted either through email, CD, FTP site, or through another reliable digital format.