

FORMAL RESEARCH REPORT and PRESENTATIONS

RESEARCH PROPOSAL, BIBLIOGRAPHY &

OVERHEAD TRANPARENCIES DUE: At the beginning of recitation, September 19-21, 2006.

STATUS REPORT PRESENTATIONS: In recitation, September 19-21, 2006.

ROUGH DRAFT OF FORMAL REPORT DUE: At the beginning of recitation, October 10-12, 2006.

FORMAL REPORT & SLIDES DUE: At the beginning of lecture, November 13, 2006.

FORMAL PRESENTATIONS: In recitation, November 14-December 6, 2006.

You are required to work on your own for this assignment. If you have questions, ask Dr. Callen, Ms. Bourgeois, or your recitation instructor.

This is the first handout regarding the formal research report and presentations. You are required to research, evaluate, and report on a technology or product that is strongly related to electrical and/or computer engineering. You are encouraged to select a technology or product related to the anticipated area of your major design project. For example, if you are planning to work on a project in the electric power area, you might choose to focus on new electric motor technologies or on a comparison of existing electric vehicles.

The subject of your report must be a technology or product *that has been reduced to practice*; i.e., that actually exists. You may not choose a topic that is simply a theoretical or mathematical concept. For example, an analysis of a specific DSP microprocessor would be acceptable, while a paper on basic principles of computer architecture or mathematical models for DSP filtering algorithms would not be acceptable. Note that this technology or product need not be sold to consumers, nor must it have been commercially successful.

Your study and report should accomplish three distinct goals: (1) You should **become informed** about a topic through an in-depth study of technical issues and trade-offs; (2) You should **evaluate** what is being presented about the topic, understanding the contributions and viewpoints of different authors; (3) You should **synthesize** the ideas of these authors in order to form your own conclusions that can be and is supported by technical evidence. The report should not be merely a compilation of facts, but should define a “research question” about some aspect of your topic, summarize other people’s thoughts on this question, and present your own conclusions.

You must identify at least **four primary research sources** from books, technical journals, or conference proceedings. If you are having trouble selecting a topic, *IEEE Spectrum*, *Computer*, and various trade publications are good sources for identifying potential subjects. The GTEL databases, such as INSPEC and COMP, are useful for locating specific sources. The ECE 4000 website (<http://users.ece.gatech.edu/~hughes/ece4000/>) includes links to related resources that include tips on locating technical information. You should use additional references as needed in completing your paper. For example, you might consider articles describing competing products or general market trends in the relevant technology or product sector. Articles published in recognized refereed journals that are web-accessible are allowed as primary sources, but general resources on the World Wide Web may **NOT** be used as primary sources, although they may be used as supplemental sources. For the finished paper, you should have used a minimum of six to eight sources of varying types.

Sections 3.1 – 3.5 in the textbook discuss potential sources of technical information. Sections 3.7 – 3.9 provide guidance on oral, written, and graphical communications. A later handout will provide details on the formatting requirements for the formal paper, guidelines for the formal presentation, and a slide template.

In a few weeks, you will submit a progress report and give a short presentation on your selected topic during recitation. These will identify the general topic you have chosen, the primary sources you have located to date, the specific issue(s) on which you will be focusing, and a brief summary of the results already obtained. It is not necessary (or expected) that you will have completed your analysis or determined your final conclusions.

The following items describe the specific requirements for the progress report documentation and presentation:

- Your **presentation** should last 3 – 4 minutes, followed by a couple of minutes for questions. You will not know the order (or week) of the presentations in advance.
- For your presentation, prepare 1 or 2 **overhead transparencies** consisting primarily of text. These may be handwritten (print clearly!), generated from a word processing program, or generated using PowerPoint software. Two transparencies are the limit. Your presentation should identify the focus of your paper, not just a distillation of facts.
- The one-page **research proposal** describes the general topic you have chosen, the primary sources you have already located, the specific issue(s) on which you will be focusing, and a brief summary of the results already obtained. It is not necessary (or expected) that you will have completed your analysis or determined your final conclusions. However, the proposal must clearly define the focus (research question) of your paper, not just present a summary of background material.
- The **annotated bibliography** documents the research sources you are using to prepare your paper and presentation. Each entry in the annotated bibliography consists of a source citation in standard format (a handout will be distributed in class) and a short (typically, 3-5 sentence) description of the contents of the source *and its relevance to your topic*. The reference citations should start at the left margin of the page, with the descriptive annotation indented under each reference. This format (citation followed by description) should be repeated for each source. While the annotation is similar to an abstract, you should not simply copy the abstract from a source. The annotation serves two principal purposes: it helps you recall what information was contained in each source, and it helps others identify sources that may be useful to them in researching related topics. For web sites, the annotation also should indicate why you believe it to be a credible source. An example of an annotated bibliography is provided on the following page of this handout.
- Turn in the following items, stapled together: (a) a one-page research proposal, including the proposed paper title; (b) an annotated bibliography, including at least four primary research sources; and (c) photocopies of your overhead transparencies. The top page of all assignments should include your name, descriptive title, and section number.

Sample Annotated Bibliography (adapted from "B.F. Goodrich Air Force A7-D Brake Problem Case And The Whistleblowing Debate," <http://ethics.tamu.edu/ethics/ethics/goodrich/goodric1.htm>) Note: some page numbers are for example only and are not the actual ones.

K. Vandivier, "Why should my conscience bother me?" in *In The Name Of Profit*, R. L. Heilbroner, Ed., New York: Doubleday & Company, Inc., 1972, pp. 3-31.

Vandivier, as whistleblower at B.F. Goodrich, presented his side of the incident in this well-crafted account. The self-proclaimed ethical actor in the case, Vandivier skillfully caricatured the other central actors in the case, detailing how events at B.F. Goodrich lead inevitably to his blowing the whistle on unethical conduct surrounding qualification testing and reporting falsification at the Troy, Ohio Wheel and Brake Plant that caused possible danger to aircraft flight testing pilots. As one of the most famous cases in the literature of whistleblowing, Vandivier's narrative is held as a paradigm example of one courageous individual challenging corporate corruption, and his account went unchallenged for nearly 20 years. This article is the primary resource describing the whistleblower case that will be used as the major example in my research paper.

J. H. Fielder, "Give Goodrich a break," *Business and Professional Ethics Journal*, vol. 7, no. 1, pp. 332-345, 1988.

This article challenges the original assumptions of the Goodrich case, noting that Vandivier overstated the case of pilot safety. In addition, it questions why those teaching business and professional ethics courses, as well as those engaged in scholarly writing on whistleblowing, have treated the case solely on Vandivier's version, and questions whether we have been presenting and spreading a one-sided account that is also unfair. Issues addressed: 1) whether Vandivier's moral judgments about Goodrich were accurate and fair; 2) how academic writers have used Vandivier's version of events to attack Goodrich; and 3) why writers have uncritically accepted Vandivier's account. Fielder concludes that it is because "... it so clearly fits a concept of corporate wrongdoing and individual courage that fairly obvious signs that something is wrong have been overlooked."

D. T. Goldberg, "Tuning into whistleblowing," *Business and Professional Ethics Journal*, vol. 7, no. 2, pp. 22-38, 1988.

Using the Challenger disaster as his focus, David Goldberg disputes De George's distinctions between obligatory and permissible whistleblowing, stating that when the consequences of whistleblowing benefit the public at large, other considerations must be subordinated. He further argues that the only way we can often prevent further incidents is to expose current ethical misconduct. This article provides a secondary example to illustrate whistleblowing and provides a strong viewpoint on the ethical obligation of whistleblowing.

M. Davis, "Thinking like an engineer: The place of a code of ethics in the practice of a profession," *Philosophy & Public Affairs*, vol. 20, no. 2, pp. 150-167, 1991.

In this lucid essay, it is argued that "a code of professional ethics is central to advising individual engineers how to conduct themselves, to judging their conduct, and ultimately to understanding engineering as a profession." Using the now infamous Challenger disaster as his model, the author discusses both the evolution of engineering ethics as well as why engineers should obey their professional codes of ethics, from both a pragmatic and ethically-responsible point of view. A must read for any graduating engineering student. Good general background on the history of engineering ethics and codes of conduct, although not specifically focused on whistleblowing.