EE x96 Writing Assignment-- Global, Societal, and Contemporary Issues

Galen Sasaki August 26, 2010

Purpose: This assignment is to explore the following issues. The engineering profession is interesting from a technological point of view but engineers must be aware that engineering solutions can have an impact on people’s lives in both positive and negative ways.

- **Impact of engineering solutions in a global and societal context.** It is important for engineers to understand these impacts so they contribute to the society in a positive way. The global context is becoming increasingly important because of the so-called globalization of the economy. But also engineering solutions can significantly affect people’s lives in many parts of the world.

- **Contemporary issues.** It is important for engineers to keep up with the latest technologies but also the current politics, societal issues, etc.

This assignment allows you to do research and reflect on these issues. At the very least, it will help you become aware of the engineering profession in a broader sense.

The assignment is to research global and societal contexts and contemporary issues and to write a paper about it. Your paper should have 1 inch margins, 12 point font, single spaced lines but double space between paragraphs, and page numbers starting from the cover page. Your paper must be at least 5 but no more than 8 pages excluding the cover and reference. Your paper should have a

- **Cover page:** Includes the title of your paper, your name, course number, and date.

- **Section 1. Introduction.** This should include the purpose of your paper and its organization.

- **Section 2. Global Economy:** Discuss how the EE and/or computer profession may change over the next 20 years due to the global economy. In your discussion, identify at least three ways how the profession may change. Also discuss how the global economy may change due to the EE and computer solutions. In your discussion identify at least three ways that the economy may change due to these solutions.

- **Section 3. Societal Impact:**
  - Identify and briefly discuss at least three EE and/or computer technologies over the last 50 years whose impact has affected societies and cultures in multiple countries. (E.g., in mechanical engineering, the airplane.)
  - Identify and discuss at least two new or emerging EE and/or computer technologies you believe may have a broad impact in the future. In your discussion, have some thoughtful analysis of how and why societies and cultures may change. (E.g., in civil engineering, new building materials may lead to cheaper buildings in the future.)

- **Section 4. Under Developed Countries.** Identify and discuss three EE technological ongoing projects for under developed countries. Explain their goals, how they are overcoming difficulties, and their potential impacts, e.g., cultural, environmental, and/or economical. Also, explain or define what an under developed country is, and identify three example under developed countries and three example developed countries. In addition, identify three technological constraints that are in under developed countries but not in developed countries.
Section 5. Contemporary Technical Issues. Identify and discuss at least three current EE technologies and/or technological issues why they are important (e.g., examples of technological issues are greenhouse gases or pollution, and examples of technologies are e-science and embedded systems). Some of these issues may be from previous sections.

Section 6. Current Events/Issues and EE and/or Computer Profession. Identify and discuss at least three current events and/or issues that have or can affect the EE profession. (E.g., current domestic economy, globalization of the economy, global warming, energy sustainability, baby boomer retirement.) Your discussion should explain how these events/issues can affect the profession, and how this may affect some of your future plans. Some of these issues may be from previous sections.

Section 7. Conclusions.

Reference: You must have at least 10 resources. Cite all resources properly including electronic ones, e.g., Internet web sites. References should follow the IEEE format which can be found in either of the following web sites:

- [www.ieee.org/pubs/transactions/auinfo03.pdf](http://www.ieee.org/pubs/transactions/auinfo03.pdf)
- [http://www.ece.uiuc.edu/pubs/ref_guides/ieee.html](http://www.ece.uiuc.edu/pubs/ref_guides/ieee.html)

Some suggestions to get started are to use Internet search. Also, www.youtube.com can also have some nice tutorials (e.g., XO laptop or one-laptop-per-child project [http://www.youtube.com/watch?v=PM33EzEzEA](http://www.youtube.com/watch?v=PM33EzEzEA)). Another resource is IEEE Spectrum magazine, which has tutorials on technologies and current issues for the EE profession. You can access the magazine using Hamilton Library’s online services. The library has a subscription to the IEEE Explorer, which is the online access to IEEE articles. So you can access the articles for free. The IEEE web site ([www.ieee.org](http://www.ieee.org)) and National Science Foundation (NSF) web site ([www.nsf.gov](http://www.nsf.gov)) also has pointers to tutorials and other information about current EE and science. For current events, of course the newspapers are good sources. Almost all of the news sources have web pages. The Scientific American magazine is another good source of tutorials about current science and engineering. Hamilton Library should have a subscription.

Deadline: Submit your report within the first six weeks of the semester. The instructor will give you comments including a grade (0-100%) within two weeks of submission. Then you may revise and resubmit your report on the Monday of the last week of lecture. Submit your reports as a pdf and as an attachment either email or laulima depending on instructions from the instructor.

Grading: Your grade will be based on content and, if you are using this for WI, writing style. Therefore, if you are not using this for WI then the entire grade is based on content. If you are using this for WI then half the grade is on content and the other half on writing style.

Content will be based on the rubrics of the next page. There are five “Performances”, each is worth 20% of the content score. For each performance, you get the entire 20% for Excellent, 16% for Acceptable, 10% for Marginal, and 0% for Unacceptable. Note that 90%, 80%, 70%, 60%, and 50% corresponds to the letter grades A, B, C, D, and F, respectively.
<table>
<thead>
<tr>
<th>Performance</th>
<th>Unacceptable</th>
<th>Marginal</th>
<th>Acceptable</th>
<th>Excellent</th>
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</thead>
<tbody>
<tr>
<td>Global Economy</td>
<td>Does not understand that engineering is in a global economy.</td>
<td>Understands EE is in a global economy but does not understand how the profession affects the economy and vice versa.</td>
<td>Can identify three issues of how the global economy affects the EE profession. Can identify three issues of how the EE profession affects the global economy.</td>
<td>Can effectively discuss how the EE profession may change over the next 20 years due to the global economy, and how the global economy may change due to EE.</td>
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<tr>
<td>Societal</td>
<td>Uninterested in other countries and cultures.</td>
<td>Can identify at least one EE technology over the last 50 years whose impact has affected societies and cultures in multiple countries.</td>
<td>Can identify at least three EE technologies over the last 50 years whose impact has affected societies and cultures in multiple countries.</td>
<td>Can identify at least two EE technologies currently under development that does not have an impact today but may have an impact in the future. There should be thoughtful analysis of how and why societies and cultures may change.</td>
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<tr>
<td>Under Developed Countries</td>
<td>Unaware of under developed countries.</td>
<td>Knows the definitions of an under developed country and a developed country. Can identify three countries each.</td>
<td>Can identify three technological constraints that are in under developed countries but not in developed countries. Can identify three EE technology examples that have impacted under developed countries.</td>
<td>Can identify at least two EE technologies currently under development that does not have an impact today but may have an impact in the future. There should be thoughtful analysis of how and why societies and cultures may change.</td>
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<tr>
<td>Contemporary Technical Issues</td>
<td>Has poor knowledge of current technical issues</td>
<td>Has some knowledge of current technical issues but not well articulated</td>
<td>Has reasonable knowledge of current technical issues and can discuss these issues.</td>
<td>Has very good knowledge of current technical issues and has some vision.</td>
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<tr>
<td>Current Issues Facing Engineering</td>
<td>Has no idea there is a connection between events in the world and the engineering profession and practice.</td>
<td>Is aware of the importance of major issues but cannot connect it easily with engineering practice.</td>
<td>Has acceptable knowledge of current events influencing engineering and is able to think about connections if asked.</td>
<td>Has thorough knowledge of how current issues influence engineering and can link issues to engineering practice in original ways.</td>
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