Kelly Desmond
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ECE 480
Professional Assessment Paper

1) **How have I satisfied the learning objectives in this course and contributed to team and course outcomes? Cite each learning objective and refer to examples throughout the term.**

A. Describe various forms of technical communication and the reasons for using them.

During the course of the semester, there were a lot of forms of technical communication. Emails, phone calls, journal and presentations were all different forms that were used this past semester. Emails were sent very often to keep all the team members on the same path, this included multiple emails to the facilitator and sponsor as well. There was a lot more emails sent than phone calls made but I think I learned it should be the opposite in the future. The other forms of technical communication were the presentations and papers we had to do. These were more to communicate how our project is going and what the project is all about to people outside of the team rather than helping the team finish the project.

B. Write well-organized technical reports.

There were plenty of chances to write well-organized technical reports. In ECE 480, a proposal, application note, design issues and final report paper were all assigned and completed during the semester. The proposal really gave me an opportunity to write a good well-organized technical document. A lot went into the proposal being that my team's sponsor was the Air Force Research Lab and if the proposal was not accepted then money for the project was not received. The final report is still being written but it has already helped me learn how to be organized due to the fact that we are organizing all that the team did over the semester in to one final technical document.

C. Write a team proposal for a major design project and obtain approval.

The proposal was definitely a group effort. One big part of the proposal was the Voice of Customer. I was able to create the FAST Diagram and the feasibility matrix and make sure they were complete and correct for the proposal. I also worked on the introduction as well as the background. As I mentioned before, being that our sponsor was the Air Force Research Lab it was very difficult to get a proposal approved. The proposal was decline once due to a budget concern but the team worked together and was able to get the proposal approved after fixing the problem.

D. Comprehend appropriate content and style of oral presentations.

Two oral presentations were given during the semester, one was a presentation on our proposal and the other one was a technical presentation. Both presentations taught me that when it comes to PowerPoint and oral presentations, simplicity is a good route to take even if it is a technical presentation. It was tough to figure out what should be on the PowerPoint slides and what should be said orally.

E. Access relevant standards and interpret their meaning and application.

The team had a few standards that needed to be followed. The project was to monitor the health of a wireless sensor network. The team needed to either build or buy a wireless sensor network. After much thought and research a wireless sensor network was bought. One main concern was battery life so the team went with a battery less wireless sensor network.

F. Delineate the principle design criteria and constraints for an electrical or computer engineering design project.

One big constraint was cost. The budget that was approved by the Air Force Research Lab was $2,000. The team was able to buy and configure a wireless sensor network for only $1,250. Other than cost there was not that many constraints due to the fact that this project is more of a research project rather than a design and build project.

G. Describe and understand the overall engineering design process—e.g., project justification, identification of constraints, establishment of design criteria, establishment of timetables, identification/scheduling of critical path, the partitioning of work, project monitoring, and project evaluation.

I think being part of a team really helped understand the overall engineering process. I have learned that a team works a lot better than a single person. The team was able to complete a management plan and actually separate the project into different parts. My team consisted of two electrical engineers as well as two computer engineers. We were able to have the computer engineers work on the software and me and the other electrical engineer work ion the hardware. With a lot of communication the team was able to keep the project on the correct path and be very successful.

H. Describe and understand contemporary industry practices and trends with respect to electrical and computer engineering.

There were a lot of speakers from large companies that came into lecture and taught us a lot about contemporary industry practices. Gregg Motter from Dow Chemical and Dr. Asif Naseem from Oracle both taught me a lot about two different industries. I also learned a lot about the wireless sensor network industry and was able to see how much they are implemented in everyday life.

I. Describe, understand, and apply key tools used in the overall key tools used in the overall electrical and computer engineering design process.

Being part of a team has allowed me to learn many team based tools such as communication and organization which go hand in hand. I also got to learn a lot more about the tools in the lab such as oscilloscopes and digital multi meters. I was able to learn some programming tools such as Python and visual basic as well. I know from past experiences such as internships that all these tools are used in the electrical and computer design process.

J. Understand the benefits and potential problems of teaming, describe qualities and processes of effective teams, and describe the role of teamwork in system design.

Teaming was definitely beneficial when it came to this project. I was able to understand how important teaming is but there are definitely some problems that came from teaming. A good team is a communicative team. Another thing that I think is very important is respecting others work. With a team different people do different tasks and if you don't respect your team member's work then the team will not be successful. With communication and respect, a team will be able to create a successful design.

K. Acquire and understand information contained in contemporary technical literature—e.g., trade journals, magazines, books, conference proceedings, and supplier literature—about hardware components, software, design tools, third-party suppliers, etc.

For my team's project we bought and configured a wireless sensor network development kit. One of my main goals was to learn how to configure the network and teach others how it works. For me to be successful at teaching others I needed to read a lot about the development kit that was bought. I received a lot of information from the supplier of the wireless sensor network as well as third party documentation including magazine articles and user reviews.

L. Browse the web to acquire information about electrical and computer engineering, software, design tools, third-party suppliers, etc.

This objective was completed the first day I knew what my project was going to be. Research was a huge part of this project starting from looking into what sort of wireless sensor network will be needed as well as learning about wireless sensor networks and how to monitor them. When we were assigned the application note assignment, I used the web and to help me learn how to configure the wireless sensor network.

2) **What have I learned about the design process from my work on the design project? Restate your portion of the overall project as defined in your team's design proposal, which was developed and completed in week 6 of the semester. Describe your work during the semester on your TECHNICAL portion of the design project. In your write-up discuss your work in terms of the overall engineering design process – e.g., project justification, identification of constraints, establishment of design criteria, establishment of timetables, the partitioning of work, project monitoring, and project evaluation. Also discuss your work in terms of design iterations that occurred during the semester.**

Being able to work on this design project taught me a lot about the design process. I have learned how much time it takes to actually create a good design. But with good time management skills and getting things done when they are supposed to be done really helps. Even when there is "down time" there is always something to do. I also learned that you can't wait for answers. If my team would have waited to hear from our sponsors then nothing would have been completed. I also learned that communication within a team is probably the most important thing when it comes to a team based design project. Without communication, the project would not be completed.
From the team's proposal my technical role was to be in charge of network configuration and maintenance. I was able to learn everything about the wireless sensor network that was purchased. I was able to configure it and keep it running for the multiple tests that were done throughout the project. It was tough at first to get this wireless sensor network configured and running properly but after a few tries I was able to get it up and running.

3) **What technical communications have I done this semester? List the reports and presentations you have helped prepare. Also indicate those presentations for which you were a speaker.**

I have done a lot of different technical communications this semester whether it was emailing and making phone calls to complete the project or writing technical papers and completing presentations to help show others what my project was all about. I helped prepare all of the reports and presentations that were assigned. I helped write the proposal, the design issues paper and am working on the final report as well. I also helped prepare the oral proposal presentation as well as the oral technical presentation. I was a speaker for both presentations. The team was able to split each presentation into four parts so we all got an opportunity to speak. For the first presentation I was the first one to speak or the "Attention Grabber". It was my job to grab everyone's attention and really get them interested in our project. For the technical presentation I spoke about the different kinds of way to harvest energy. I will also be speaking in the final report presentation as well.

4) **What is the impact of this course on my career objectives and professional goals?**

This course did not have that much of an impact on my career objectives and professional goals. I definitely though I was going to learn more and get more out of the class. My project did not really help me learn as well because it was not truly a design project, it

was more of a research project. The class did help me learn how to work as a team and manage my time but I don't think it help me grow as an electrical engineer at all.

5) **What are my primary strengths and weaknesses?**

I have a few strengths. My biggest strength is how driven I am and how much of a hard worker I am. I have been working since I was 12 years old and I know what it takes to be successful. My other strength is my time management. Being an electrical engineer at MSU you need to know how to manage your time.
My primary weakness has to do with one of my strengths. I need deadlines. Without deadlines my time management is not very successful.

6) **Where would I like to be professionally in five years after graduation?**

I hope to be at a growing company utilizing my technical and communication skills as an electrical engineer. In five years I would hope to have grown within the same company and have the opportunity to be teaching or helping that company grow. Hopefully I will have enough experience to be a manager and maybe have a company help me pay for some education so I can get my MBA.

7) **What life-long learning steps must I plan to undertake in order to achive this five-year professional goal?**

There are multiple steps that I must plan to become a manager within five years. I will definitely need to work on my leadership skills and be able to voice my opinion more often. I can't just walk into a company and dip my toes in the water, I will need to jump head first and get involved with that company as much as possible.

**Appendix**
**See Attached Resume**

# Kelly R. Desmond

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**Objective:** Seeking an entry-level position in engineering to utilize my Bachelor of Science degree in electrical engineering, work experience, technical and communication skills.

**Education:**

**Michigan State University**
Major: Electrical/Computer Engineering
GPA: 3.2
Attended 2009-present
Expected Graduation Fall 2013

**St. Francis de Sales High School** – Toledo, OH
College Preparatory School
Attended 2005-2009
Graduated in the top 15% of my class

**Employment History:**

**SUMMER ENGINEERING INTERNSHIPS**

***Johnson Controls Inc* –** Holland, MI | May 2013 – August 2013

- Worked with Global Tools Team.
- Gained knowledge of and experience with soliciting requirements for planning tool.
- Helped develop global capital expenditure planning tool using Visual Basic.
- Documented capital expenditure and maintenance forecasting process.
- Interfaced with Tools, Controller and Process teams.
- Conducted and completed entire inventory of all calibrated and software tools in Electronics department.
- Located and organized over 1000 engineering tools such as Oscilloscopes and Function Generators.
- Worked for "Ford" team to test failing instrument clusters, using temperature chambers.

***BOSCH* –** Farmington Hills, MI | May 2012 – August 2012

- Worked in the Diesel Gasoline Systems department helping with Engine Control Unit for GM Duramax
- Independently processed return parts conducting memory read and EEPROM data processing
- Provided summary information to customer quality team for warranty tracking and customer presentation.
- Constructed tester interface harnesses to support memory extracts.
- Tested and collected data in vehicle using INCA calibration development tool.
- Collected and organized data related to returned units exhibiting failures of the ABS replicated TOSS (Brake System Speed Signal) sensor output.
- Worked with test engineer to setup and conduct production Software Monitoring Function Release tests.

***BETCO Innovative Cleaning Technologies* –** Toledo, OH | May 2011 – August 2011

- Worked under the maintenance department as an engineering intern.
- Learned how all the product lines ran in the factory. Was made familiar with parts like motors, solenoid valves, bearings, pumps, and air cylinders.
- Did entire inventory for the maintenance parts shop. Organized over 1000 parts by type and product number into bins.
- Made it possible for employees to search via excel to find any part out of 1000 plus bins.

***Mulhaupts Inc* –** Lafayette, IN | May 2010 – August 2010

- Installed and programmed security systems for fire and theft detection and deterrence directed toward industrial, commercial and residential applications.
- Responded to service calls requiring system diagnostics and corrective action.
- Programmed control panels for customers' custom applications and needs.
- Learned craftsmen skills of running conduit, wire pulling, soldering, splicing, connecting and field device hook-ups.
- At summer's end I was working independently for both installation assignments and service calls.

**Volunteer Experience:**

***Honduras Mission Trip Summer of 2008***

- Traveled to Honduras with fellow high school classmates to provide missionary services. Specifically, our group helped to rebuild an outbuilding on the mission campus for single mothers and their children.
- Was selected as construction group leader by my peers to organize and lead the activity of the volunteers under the supervision of the site manager.

***Community***

- Provided tutoring services for underserved, at-risk, students.
- Outreach program St. Patrick's Historic Church.

**Other:**

***Skills***

- Computer Technical Proficiencies: MS Office applications of Word, Excel, PowerPoint and Access. Computer languages of C++, Visual Basic and Python | Use of mechanical hand tools. | Wiring, Running Conduit, Splicing, Soldering, Connections. | Familiar with manufacturing & machine parts, such as motors, drives, bearings, hydraulic & pneumatic valving systems, etc. | Reliable, Honest, Positive, Collaborative, Hard Worker.

***Awards & Activities***

IEEE Member | National Honor Society 2007-2009 | St. Francis de Sales High School First Honors 2005-2009 | Junior Varsity Lacrosse 2008