

## 5 Professionalism

*This discussion is with respect to the paper titled “Contextualizing Professionalism in Capstone Projects Using the IDEALS Professional Responsibility Assessment”, International Journal of Engineering Education Vol. 28, No. 2, pp. 416–424, 2012*

### 5.1 Areas of Responsibility

Area of Responsibility	Definition	NSPE Canon	IEEE	IEEE vs. NSPE
Work Competence	Perform work of high quality, integrity, timeliness, and professional competence	Perform services only in areas of their competence; Avoid deceptive acts.	Maintain and improve technical competence while only undertaking projects that fit our qualifications.	IEEE talks of giving and accepting criticism and NSPE focuses on overseeing projects and giving signatures and stamps of approval.
Financial Responsibility	Deliver products and services of realizable value and at reasonable costs.	Act for each employer or client as faithful agents or trustees.	Always act honestly in giving estimates and stating claims. Also never accept bribes.	IEEE and NSPE don't differ when it comes to finances.
Communication Honesty	Report work truthfully, without deception, and understandably to stakeholders.	Issue public statements only in an objective and truthful manner; Avoid deceptive acts.	When making estimates and proposals, be honest with your calculations and estimates. Avoid personal conflicts of interest, and disclose them to involved parties.	IEEE and NSPE have similar standards regarding honesty.
Health, Safety, Well-Being	Minimize risks to safety, health, and well-being of stakeholders.	Hold paramount the safety, health, and welfare of the public	Improve technology and technical competence to reduce chance of injury and misuse. Increase well-being by treating all colleagues equally and fairly. Avoid injuring others reputation and property.	In addition to public safety, IEEE also involves upgrading technology features for safer use.

Property Ownership	Respect property, ideas, and information of clients and others.	Act for each employer or client as faithful agents or trustees.	Avoid diminishing one's property. Whether it be your own property, or a colleagues. Said property may be one's property, reputation, body, etc.	NSPE has a focus on respecting one's career, while IEEE determines property to be career and all belongings.
Sustainability	Protect environment and natural resources locally and globally	Meet the human needs for natural resources and land use while conserving the resources for positive environmental quality and future development	Publicly and promptly disclose factors that might endanger the environment. NSPE determines sustainability as catering towards resources that cause no harm to nature and the public.	IEEE includes an honesty factor in this category as you must disclose possible harm to the environment and act to avoid this harm.
Social Responsibility	Produce products and services that benefit society and communities	Conduct themselves honorably, responsibly, ethically, and lawfully so as to enhance the honor, reputation, and usefulness of the profession	Assist colleagues in professional development. Conduct yourself in a manner that benefits safety, health, and well-being of the public and peers. Treat all fairly and as equal.	IEEE includes conducting one's self as honorable to the profession, and also includes acting for the benefit of others.

**5.2 Project Specific Professional Responsibility Areas**

*For each of the professional responsibility area in Table 1, discuss whether it applies in your project's professional context. Why yes or why not? How well is your team performing (High, Medium, Low, N/A) in each of the seven areas of professional responsibility, again in the context of your project. Justify.*

- 1. Work Competence:** Our project's outcome is creating a proposal for the university. We need to be certain that our figures are correct. If we were to make a proposal that does not accurately represent what the system is capable of we could mislead those involved in reviewing our proposal.

**High:** We are currently wrapping up gathering the data and information we need to begin determining the size of our project as well as possible installation locations. On top of this we are also completing objectives in a timely manner and are currently on track.
- 2. Financial Responsibility:** This ties into our work competence because of our proposal's reliance on cost benefit analysis. We have to maintain that what we say the system will cost in investment and operation/maintenance is true. We are trying to truthfully save the school money while also reducing emissions.

**Medium:** We haven't begun pricing our project yet, however, financial responsibility remains an important pillar in our project. We hope to keep our project under budget and provide a financial benefit for the university.

3. **Communication Honesty:** We have to be completely honest in our communication for the proposal. So far, we have stayed in contact with PNE and the powerplant in order to have full transparency with what our project is capable of doing.

**High:** Our need to communicate our proposal accurately and truthfully is of the utmost importance.

4. **Health, Safety, and Well-being:** Since the scope of our project is contained in a proposal, health, safety, and well-being do not apply as strictly as if we were working with the construction as well. However, since our project aims to reduce emissions of fossil fuels it certainly won't hurt the health, safety, and well-being of the public.

**N/A:** Our group will not need to perform heavily in health, safety, and well-being as we are working outside of construction and lab environments. However, our project will have a positive impact on the well-being of the public through reduction in emissions.

5. **Property Ownership:** Property ownership applies because Iowa State University would be owning all of the hardware, the point of this project is just to propose the construction. Our group would own all of the intellectual property involved.

**Medium:** We need to be careful with the intellectual property of our team, Iowa State University, and Polar Night Energy.

6. **Sustainability:** One of the main goals of our project is to reduce the university's fossil fuel emissions which plays directly into sustainability. This will be done by storing energy from renewable sources in order to partially heat the campus.

**High:** Again, the primary goal of this project is to reduce the university's use of fossil fuels which plays directly into sustainability and is a major factor in our decision making.

7. **Social Responsibility:** The intent of this project is to use energy systems that are more safe for the environment. We are attempting to bring a renewable energy system to the school.

**High:** Reducing the university's emissions will only benefit the members of the campus as well as the surrounding communities and remains an important influence in our project design.

### 5.3 Most Applicable Professional Responsibility Area

*Identify one area of professional responsibility that is both important to your project, and for which your team has demonstrated a moderate or high level of proficiency in the context of your project. Briefly describe what this responsibility means to your project, the ways in which your team has demonstrated the responsibility in the project, and specific impacts to the project that you have observed*

We are concerned with communication honesty. We are creating a proposal for the university that requests the building of a renewable energy system. We are confident that the technology in this system will adequately improve the school's energy usage. It will also reduce the amount of greenhouse gas emissions. For these reasons we have to have total honesty in our proposal. The need to communicate how and why our system is a good investment is paramount to our project. If we were to act in bad faith it would show in our work once the system is implemented. This will also reflect badly upon the company who is building the system. By acting in accordance with the IEEE code of ethics, we are confident that

we will be able to create a truthful and accurate representation of the energy system we want to have on campus.