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Writing for Engineering: Self-Assessment Essay

This essay analyzes my development as a technical communicator this semester. My portfolio projects serve as primary evidence. These projects include a technical description of a turbofan engine, a directive policy memo, a disaster response proposal, and a collaborative lab report. This course shifts my perspective of writing from simple data delivery to audience-centered technical communication.

1. Linguistic Differences and Rhetorical Sensibility

My development in rhetorical sensibility involved learning to translate complex mechanics for non-expert readers. My early draft of the turbofan engine description contained sentence fragments, repetitive phrasing, and confusing references to external industries like container ships.

I revised the text to assist first-year aviation students and non-native English speakers. My final draft used direct verbs and active voice to clarify operations. I explicitly linked the low-pressure and high-pressure turbine wheels to the central shafts driving the front intake fan and axial compressor. Simple syntax improves reader comprehension across diverse language backgrounds.

2. Strategies for Reading, Drafting, Revising, Editing, and Self-Assessment

This outcome requires systematic revision habits. My directive memo serves as primary evidence. My early draft established a new meeting policy using emotional, adversarial vocabulary. I described student interactions as chaos and demanded a return to professional integrity.

During the editing phase, I recognized that policy directives require a neutral tone to preserve administrative authority. I stripped out unnecessary adjectives and generalizations. I replaced subjective phrasing with precise compliance terms like structural disruptions, inefficiencies, and removal from the meeting after repeated violations. Systematic editing creates professional organizational policy.

3. Negotiating Writing Goals and Audience Expectations

The disaster response proposal forced me to balance my design goals with the explicit priorities of public funders. My engineering goal was to design an electrical isolation network for public schools. My target funding audience includes the New York City

School Construction Authority and FEMA. These administrators focus on human impact, regulatory compliance, and fiscal sustainability.

I negotiated these expectations by focusing my text on operational outcomes instead of technical jargon. I structured the proposal around human-centered impacts: installing modular perimeter shields to block saltwater, elevating core switches to second-floor utility rooms, and deploying solar microgrids with automatic islanding switches to preserve emergency shelters during regional blackouts. I fulfilled professional formatting expectations by embedding a structured eight-week implementation timeline matrix and an itemized budget detailing design, civil infrastructure, hardware, and labor cost categories.

4. Collaborative and Social Aspects of Writing Processes

Engineering projects require seamless collaboration. I developed this skill during the group lab report analyzing artificial intelligence confidence. I worked alongside my co-authors, Shanti Sylvester and Zikun Chen. Our team divided experimental duties, standardized grading parameters, and merged individual analytical insights into a single document.

Our team encountered stylistic friction because our initial data inputs used varying tones. To resolve this, we held peer review sessions to ensure our methodology and results sections utilized identical criteria: level of certainty, use of disclaimers, language type, and acknowledgment of trade-offs. This collaborative workflow proved that professional engineering reports depend on a unified team voice to preserve the integrity of the total dataset.

5. Genre Analysis and Multimodal Composing

The flyer project required me to master multimodal composing. I converted a detailed, text-heavy six-page proposal into a highly scannable visual handout. This genre demands minimal text, clean data hierarchy, and clear geometric formatting to guide an audience during a funding pitch.

I achieved this by discarding long narrative paragraphs and restructuring key data points into isolated visual modules. I built a geographic entry point by embedding a color-coded New York City coastal storm surge map at the top of the flyer. I then converted my implementation schedule and project finances into a unified table matching project phases to their corresponding schedules, deliverables, and estimated dollar investments. This layout allowed funders to connect a phase to its schedule window and capital allocation instantly.

6. Formulating and Articulating a Stance

Developing a clear technical stance means moving beyond simple information summaries to assert a data-backed recommendation. In my proposal, my stance was explicit: traditional centralized grid hardening is an insufficient defense against storm surges, and the city must pivot to localized, decentralized power networks.

I articulated this stance by framing urban flooding as a compounding systemic threat. I argued that leaving schools unprotected guarantees repeated mechanical destruction, forces massive municipal expenditure on retroactive repairs, and strips vulnerable coastal populations of emergency shelters. This position shifted the document from a passive description of weather impacts to a persuasive argument for infrastructure funding.

7. Locating Sources via Library Resources and Online Databases

To validate my engineering solutions, I practiced using online databases like ScienceDirect to locate peer-reviewed literature. During my library research sessions, I filtered out marketing materials, commercial websites, and unverified opinions to isolate empirical data.

I located quantitative structural papers focusing on urban infrastructure vulnerabilities. Specifically, I targeted data modeling flood-resilient educational facilities and localized energy storage placement. Learning to navigate academic databases allowed me to back my local New York City project proposals with professional environmental engineering parameters.

8. Source Use Practices: Integrating, Paraphrasing, and Citing

Technical credibility requires integrating external research smoothly into my narrative. In my proposal draft, I avoided floating quotes by paraphrasing data models from the *International Journal of Disaster Risk Reduction* to support my microgrid layout.

I integrated Aros-Vera et al. (2021) to prove that energy grids function as a rigid system-of-systems, meaning that keeping school power online preserves municipal water delivery and emergency communication channels. In my collaborative lab report, our team integrated verbatim outputs from ChatGPT into structured analytical matrices. This allowed us to contrast the platform's conditional disclaimers against its absolute recommendations regarding construction resources like reinforced concrete. Every source across my portfolio projects was documented using precise, standardized APA citation formats.

Conclusion

This semester altered my perception of technical communication. Writing is a fundamental engineering tool required to secure project funding, manage

multi-disciplinary collaborations, and translate technical concepts into accessible public policy. I achieved competency in audience adaptation, precise editing, and source integration. I must continue developing my ability to balance technical accuracy with concise visual layouts in multimodal formats.