General education courses have helped me develop as a professional engineer by pushing me to think in systems, weigh tradeoffs, and understand how technical decisions behave in real settings. Engineering problems rarely exist in a vacuum. A design can meet specifications and still fail if it ignores human behavior, institutions, incentives, or the environment where it will be used. These courses provided valuable practice in navigating complex constraints, incomplete information, and differing perspectives, mirroring the realities of engineering where requirements may shift, and stakeholders often disagree.

What I learned in gen ed electives that strengthens engineering problem-solving beyond the technical aspects

As a developing engineer, it is easy to treat a problem statement as fixed and jump straight to fixing that issue. General education courses have helped me to step back and ask what created the problem, who is affected, and what counts as a "successful" outcome. That approach allows me to avoid building solutions that are technically impressive but are unnecessary, misaligned, or fragile in practice.

They also strengthened my ability to handle ambiguity and justify decisions. In history and humanities, you rarely get a single clean answer. You have to support claims with evidence, recognize bias, and explain uncertainty. That mirrors engineering design reviews, where you document assumptions, manage risk, and defend tradeoffs when data is incomplete. Gen ed writing also improved how I communicate across audiences, which matters in engineering when I need to explain constraints to non-technical stakeholders and produce documentation that another team can test and maintain.

Seeing beyond the engineering solution using RUS 3750 and ARCH 3210

RUS 3750 taught me to analyze large systems over time and to pay attention to how institutions and incentives shape what is possible. Studying the USSR through modern Russia showed how policy decisions, economic constraints, and information systems drive outcomes, even when the technical resources exist. The course also highlighted how culture and resilience shape people's responses to change. In class, I connected Russian culture to both elegance and resilience, and I noticed how traditions can persist through major disruptions. That matters for engineering because adoption is not only about performance. It depends on trust, habits, and whether people believe a change is worth the cost or disruption. A technically better solution can be rejected if it conflicts with user behavior or if the surrounding institutions cannot support it.

RUS 3750 also made the global dimension of engineering feel concrete. Modern engineering depends on supply chains, geopolitical stability, and standards. Since I want to work in embedded systems, I have to consider how conflict, sanctions, or instability can

affect component availability, manufacturing capacity, and lifecycle support. The course strengthened my habit of thinking about second-order effects, in which one change cascades into changes in resources, labor, infrastructure, and access to technology. The same pattern shows up in engineering when a small requirement change triggers redesign, recertification, schedule impact, and added cost. Which is why it's crucial to define the reasoning behind a solution, why it is needed in the first place.

ARCH 3210 helped me see engineering as part of the built environment, shaped by planning decisions and social priorities. Cities are layered systems where transportation, housing, utilities, zoning, and public services interact. Engineering projects in that context change how people move, which areas gain investment, and which communities take on risk. The course also showed how infrastructure decisions lock in outcomes for decades. Once a city commits to a transportation pattern or utility layout, changing it later is expensive and politically difficult. That reinforces the responsibility to think long-term and design for maintainability, not just initial performance.

Together, these courses expanded the dimensions I consider during problem-solving and innovation:

Economic: Cost exceeds the bill of materials. It includes maintenance, training, reliability, downtime, and the cost of failure. "Efficient" choices create hidden costs if they increase congestion, reduce access, or raise long-term maintenance burdens.

Global: Engineering decisions are constrained by standards, trade restrictions, and supply chain risk. Technology and policy are linked, and political relationships can quickly change what is available and sustainable. That pushes engineers to design for lifecycle support.

Societal: Engineering outcomes are not experienced equally. Urban history shows how benefits and harms can be distributed unevenly, raising questions about accessibility, safety, environmental impact, and who bears the risk. Those factors directly affect ethics, public trust, and adoption.

Professional engineering is about building solutions that work in the field, not just on paper. RUS 3750 sharpened my ability to think globally and recognize how institutions and culture shape outcomes. ARCH 3210 strengthened my ability to think systemically about infrastructure, constraints, and long-term consequences. Because of these courses, I approach engineering problems by defining the real issue, identifying stakeholders, and evaluating tradeoffs across technical performance, economics, global constraints, and societal impact.