Explain It! – The Engineering Vertical Video Competition
Non-Exhaustive List of Example Topics

Mechanical / Structural

- "Did you know the exact angle of the Campanile's supports makes it resistant to wind gusts up to 100 mph? It's all about *triangulation* and *load distribution*."
- "You could use *center of gravity* calculations to figure out how to stack your club's tent so it doesn't blow away on Tech Green."
- "The reason that the stairs in the MRDC vibrate when people when in heavy use? That's *resonance*, and engineers actually design for it, not against it."

Thermal / Energy

- "If you ever wondered why the library's glass façade doesn't turn it into a greenhouse—engineers model *heat transfer* to balance natural light and cooling costs."
- "That shade structure outside the Kendeda Building? It's an example of *passive cooling*—reducing radiant heat load without using any electricity."
- "You can use *thermal diffusivity* to predict how fast a cold brew coffee will warm up on a hot Atlanta afternoon."

Fluids / Airflow

- "If your organization wants to hang a banner outside the CULC, you can use *drag coefficients* to figure out whether it'll flap wildly or stay readable in the wind."
- "Those little metal stilts on top of the library? They're for *aerodynamic vortex shedding control*—reducing vibration from the wind."
- "The fountain's water arcs are shaped by *Bernoulli's principle*—the faster the fluid moves, the lower the pressure, which controls how high it sprays."

Electrical / Systems

- "You can use *Ohm's Law* to model how long your phone battery lasts based on the brightness setting—it's literally about balancing voltage and resistance."
- "Those smart trash cans at ATL use *control systems*—a feedback loop that automatically signals when the bin's full."
- "The buzzcard readers all over campus? They use *inductive coupling*—the same principle behind wireless charging."

Data / Optimization

- "If you wanted to find the *perfect spot* for your club booth, you could use *optimization algorithms*—model foot traffic, noise, and visibility as variables."
- "You can use *Monte Carlo simulation* to predict how likely you are to get a good parking spot at different times of day."
- "The bus routes are optimized using *graph theory*—it's like a network of nodes and edges designed to minimize wait times."

Human-Centered / Safety

- "Crosswalk signal timing is an *ergonomic* calculation—it's based on an assumed average walking speed of 3.5 feet per second."
- "The steps up to the Love Building are designed with *human factors* in mind—run-to-rise ratios that fit average stride length."
- "The reason lab goggles fog less than glasses? Engineers designed *anti-fog coatings* that manipulate surface tension to spread condensation evenly."