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UNIVERSITY OF DAYTON ENGINEERING STUDENTS
STUDY IMPLICATIONS OF TECHNOLOGY GONE AWRY

DAYTON, Ohio — Chancing upon Mary Shelley's *Frankenstein* in a university book store should surprise no one. Overhearing a classroom of engineering students discussing its merit, well, that's another story.

Many University of Dayton engineering students are being drawn to a philosophy course especially tailored to their chosen profession. Called "Technology and Values," the class studies the social, moral and ethical implications of science and technology.

A major focus of the class is a principal known as the "law of unintended consequences," a phenomenon that occurs when "good" technology or science backfires, as in the classic horror tale above.

"We obviously live in a highly technological and scientific age," says Paul Tibbetts, a professor of philosophy who teaches the summer class, which ends July 30. "It's imperative that we look at how this affects our lives. We must be aware of the social impact and the need to be responsible technology scientists. We must think in terms of consequences."

No one need look further than to the computer to understand unintended consequences, Tibbetts says.

"Computers began as a way to improve the quality of our lives — which it has in a number of ways," he concedes. "But look at the problems it's causing, from carpal tunnel syndrome, credit card fraud, First Amendment rights issues and invasion of privacy on the Internet. These were obviously unintended consequences of this technology."

In the class text, *Why Things Bite Back* (Alfred A. Knopf, 1996), author Edward Tenner discusses at length the after-effects of some of this century's technological and scientific "advances."

"When a safety system encourages enough additional risk-taking that it helps to cause accidents, that is a revenge effect," Tenner writes.

He uses the Titanic as a classic example of this phenomenon. "While the Titanic's owners never actually claimed their ship was unsinkable, the crews' and passengers' overconfidence in her advanced construction proved fateful."

Another example Tenner points to is a tragic Chicago fire where overconfidence in technology cost many lives.

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"The Iroquois Theatre in Chicago was deemed so fireproof that it opened before its sprinkler system was ready to operate," Tenner writes. When it burned during a performance a few months after opening in 1903, more than 600 people lost their lives in what remains the largest American disaster of its kind.

Tibbetts also warns his students to heed the "technological fix" mentality in today's world, a phenomenon where technology and science are used to quickly attack a symptom and not seek a "cure" of some societal need.

A recent example, he says, is the push to mandate trigger locks on guns, which has gained momentum since the Columbine High School shooting incident. "The issue of gun violence and youth is a greater social issue and trigger locks are merely a technological fix. Technological fixes are more illusory than a genuine solution."

A less pressing illustration of this phenomenon is the creation of fat-free food items, such as potato chips. "These chips are supposed to be a viable technological solution, but it won't work if you eat 10 times the amount you're supposed to. The real issue may be why people feel the need to overeat."

As important as considering the potentially harmful and unintended consequences of technology, Tibbetts says, is the corporate "ethos" some companies embrace when profit is king. To illustrate this, Tibbetts points to the infamous Ford Pinto of the 1970s, which in a handful of cases exploded upon impact and killed several people.

"It was revealed years later that Ford officials knew there was a chance the gas tanks in the Pinto would explode if in an accident," Tibbetts explains. "But at the time they believed to repair it was cost-prohibitive — that they would pay out less in law suit damages than to actually modify the gas tank. But they were wrong, economically and morally."

Invariably, the bottom line — maximizing profit, minimizing cost — along with market demand (and creating a demand) will continue to drive technology and science, Tibbetts says. But that doesn't mean UD's future engineers must surrender their ethics.

"Part of what we do here at UD is instill a sense of social and ethical responsibility," Tibbetts explains. "These students are not just future engineers — they're citizens and they have certain moral obligations to be conscious of creating dangerous or inferior technology."

"This school has a commitment to values. It just doesn't want to just produce engineers or attorneys — we want them to bring an ethical philosophy to their occupation."

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