

# Desktop experiment kit improves engineering ed

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Washington State University researchers joined forces with Armfield Ltd., a teaching equipment company, to launch a desktop learning module (DLM) that will improve engineering education.

The DLM was initially developed by Bernard Van Wie, professor in the Gene and Linda Voiland School of Chemical and [Bioengineering](#), and his students and colleagues. It is a desktop apparatus with multiple, easily removable cartridges that can be reconfigured to perform experiments.

Van Wie and his team joined with Armfield to produce the final product, a one-cubic-foot unit called the DLMX that can hold seven different interchangeable cartridges, each representing a different miniaturized industrial equipment process.

Armfield is launching the final commercialized product at the American Society for [Engineering Education](#) conference being held through Thursday, June 26, in Atlanta, Ga.

The DLMX makes it easy for educators to use modern and better pedagogical approaches that include cooperative, hands-on, active and problem-based learning.

"When students physically see process equipment in action they can easily match the math they are learning to something real," Van Wie said.

For instance, experiments with the heat exchanger cartridge help students understand [heat transfer](#) between fluids. They apply math directly to the [heat exchanger](#) to show they can predict heat transfer accurately.

Understanding the concepts of cross flow and parallel flow can be confusing, said Ph.D. student Baba Abdul, but with the DLMX students see the difference. They understand application of the equations "rather than just 'plugging and chugging,' " he said. Abdul worked with Van Wie in developing the teaching module.

Van Wie has worked since the late 1990s to improve engineering education and to close the gap between how [students](#) learn and the way that engineering has traditionally been taught. In particular, he led a team of researchers in developing a [curriculum](#) based on cooperative, hands-on, active, problem-based learning (CHAPL).

Provided by Washington State University

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