



SIMULATE OR PERISH

In today's academic engineering departments, simulation has become a critical capability – not only for multidisciplinary research, but also for equipping students in the classroom with skills for career success.

By Josh Fredberg, Vice President of Marketing, ANSYS, Inc.

We're all familiar with the academic adage "publish or perish." While the need to carry out groundbreaking research worthy of publication remains unchanged, today's professors face new challenges. Engineering is becoming more multidisciplinary, as research teams collaborate across schools and departments – sometimes partnering with industry – to develop innovations such as artificial hearts and hybrid vehicles. This requires new simulation tools that capture the full range of physics.

Because they recognize the multiphysics breadth, capability, accuracy and scalability of ANSYS software, faculty today incorporate ANSYS tools in their research to a greater degree than ever. Each year, more than 8,000 academic papers are published based on studies conducted using ANSYS software. This special issue of *ANSYS Advantage* is filled with examples of exciting, leading-edge research enabled by ANSYS.

According to Dean of Engineering Gerald Holder at the University of Pittsburgh (see article on page 14), dramatic improvements in high-tech tools have supported enormous advancements in engineering research and education.

"Simulation software has been one of the key tools for an engineer, but today its speed and power have improved markedly," Holder told us. "Not only have these technology improvements greatly accelerated what our researchers can accomplish, they have also democratized specialized tools like ANSYS, making it possible to put them into the hands of more students and research teams." This theme was echoed again and again as we spoke to faculty worldwide for this academic-themed issue.

In university research labs, funding and physical space are at a premium, so it's more vital than ever to minimize the use of large, costly physical testing equipment (such as wind tunnels)

with a reliable, accurate, virtual alternative. With pressures to innovate on the rise, conducting advanced research via ANSYS software enables teams to publish their findings and contribute to the engineering knowledge base on an ongoing basis.

In the classroom, faculty members train future engineers to use simulation software from ANSYS for one simple reason: It's part of the toolkit they need to master as future engineering professionals. Our industry partners repeatedly confirm the need to possess simulation skills, even for entry-level job candidates.

At ANSYS, we're committed to collaborating with leading universities to increase and amplify their use of virtual solutions. To help accomplish this goal, we develop curriculum materials that help faculty teach simulation effectively. For example, our online student training programs help young engineers to leverage more ANSYS features and functionality as they use simulation for papers, theses or student competitions. Through our academic partnership program, ANSYS is a long-standing supporter of cutting-edge research and teaching – and that commitment remains unchanged.

In addition, in 2014, ANSYS is introducing a flexible and easy-to-deploy campus-wide licensing model that will further streamline faculty and student access to ANSYS software. For universities that use only a few ANSYS solutions, this model introduces them to multiphysics capabilities that represent the interdisciplinary product development practices of professional engineering teams.

We're honored that ANSYS software is used every day by the world's leading corporate engineering teams. We're also proud to say that most engineers first encounter ANSYS solutions in the classroom or lab. Making this experience a positive one – while also supporting the advanced research that happens in universities – will always be a high priority for ANSYS. ▲

ANSYS is a long-standing supporter of cutting-edge research and teaching. Putting the power of ANSYS engineering simulation into students' and researchers' hands results in a win for everyone involved.