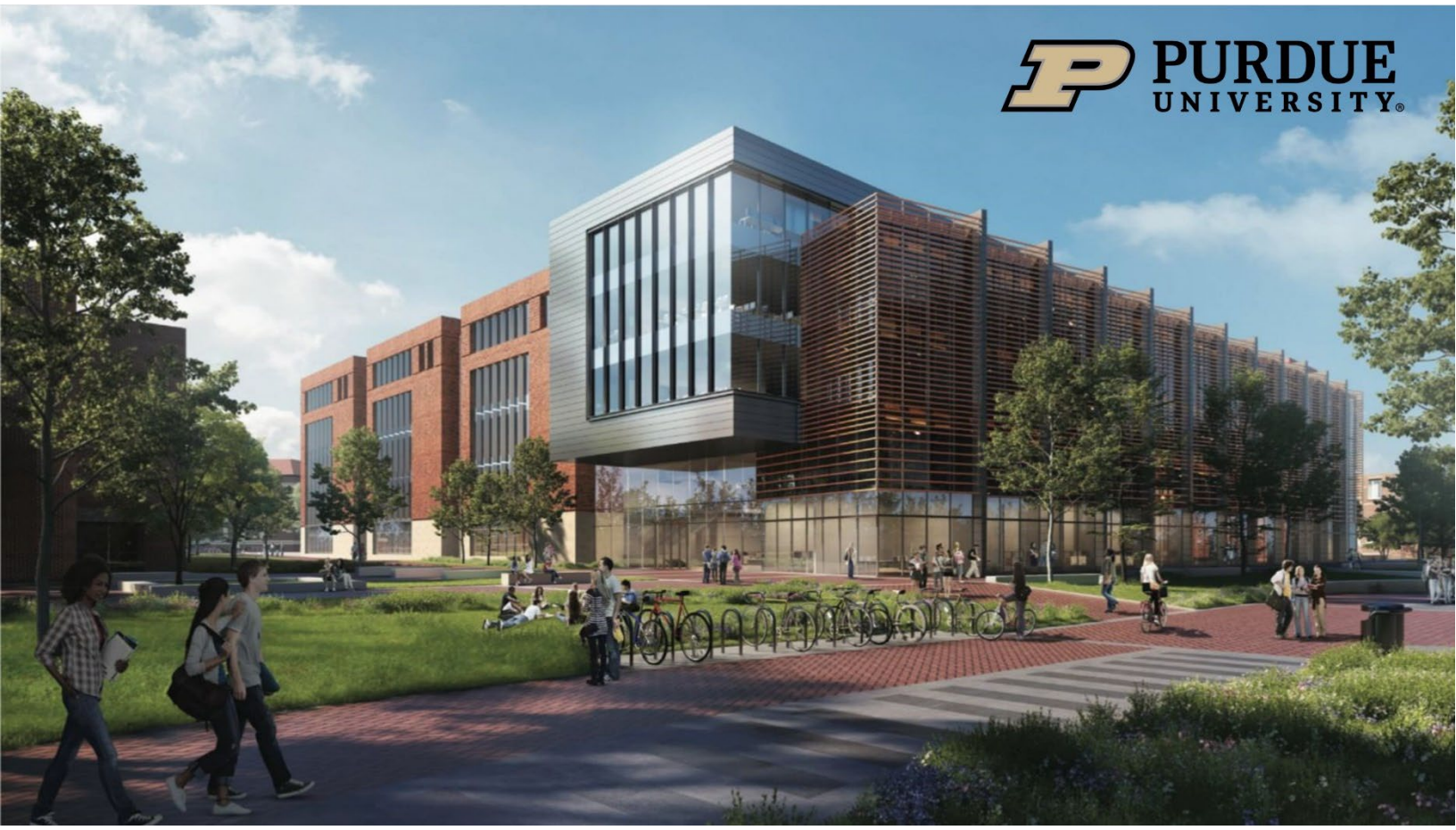
Purdue University: Empowering Tomorrow's Engineers with a Digital Thread



ANARK

Preparing Tomorrow's Engineers Today

Purdue University is setting the standard for preparing tomorrow's engineers by integrating real-world digital tools into their curriculum. Since 2018, Purdue has partnered with Anark to bring cutting-edge model-based collaboration capabilities into the classroom—empowering between 650 to 1000 students per semester to engage with complex engineering data in a clear, accessible, and modern way.

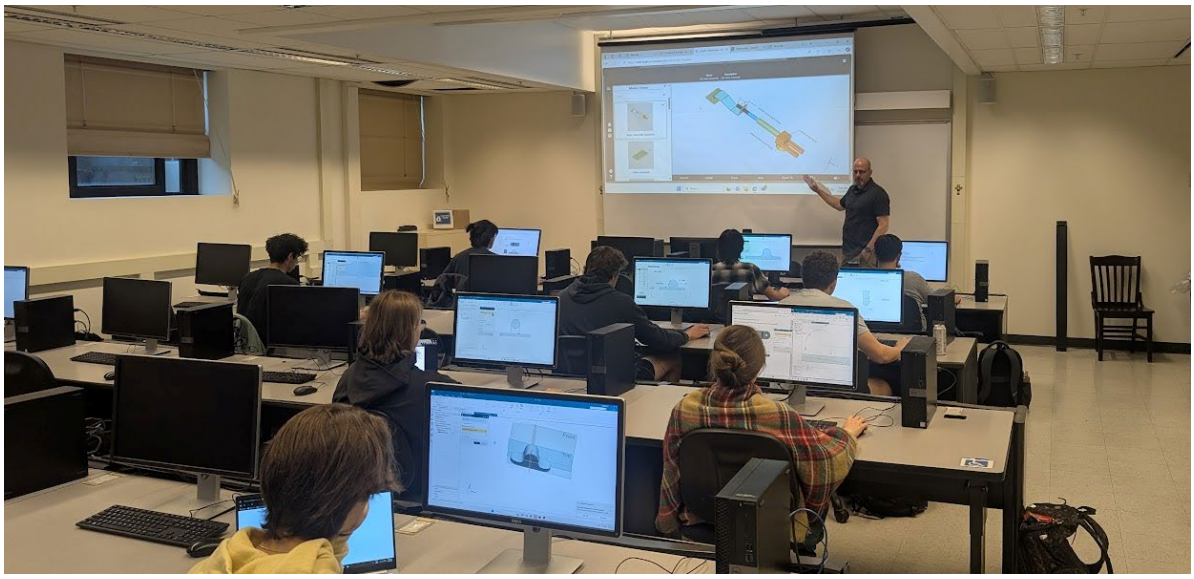


Figure 1: Travis Fuerst and Purdue students use Anark Collaborate to discuss engineering design practices.

What began as a partnership between Anark and Purdue's Department of Computer Graphics Technology has now become a cornerstone of the School of Engineering's Manufacturing Engineering Technology program. The program uses Anark Collaborate to simplify access to complex CAD data and streamline technical communication for students across multiple engineering disciplines. It levels the playing field for all students, and delivers real world digital engineering experience.

Real World Readiness from Day One

Students enter introductory engineering courses with a wide range of experience—some with no exposure to CAD or engineering, and others with significant hands-on projects under their belt. Regardless of their starting point, Travis Fuerst, Associate Professor of Practice at Purdue, has developed a course designed to immerse students in industry practices from the very first day. Fuerst explained, "This is a freshman class, and it's important that we prepare them for the real world of engineering. In this class they're using engineering tools and systems including NX, Teamcenter and Anark Collaborate from day one. I introduce them to these tools not by talking about them, but by using them – just like in industry."

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Travis Fuerst, Associate Professor of Practice, Purdue

Anark Collaborate Extends the Power of a Single Source of Truth

Before Anark Collaborate, Fuerst delivered fully annotated models via 3D PDFs. However, software compatibility issues, version control problems, and manual distribution created friction. Anark Collaborate changed the game by providing a live, browser-accessible environment that ensures every student sees the most current, accurate model—no downloads required. And because the students access the content via Anark Collaborate's file-less web interface, updating content during the semester is a snap, "If there's a mistake in a model, I fix it, republish it, and it's instantly updated. Students never even know there was an issue. That's the power of a single source of truth," noted Fuerst.

A Digital Thread in the Classroom

Travis Fuerst's course design doesn't just teach CAD—it immerses students in the entire digital thread. From the first day of class, students work within a Teamcenter-managed environment using Siemens NX and Anark Collaborate to model, store, and collaborate on their designs. Assignments simulate real-world workflows including engineering change orders, data versioning, and collaborative product development, helping students understand the interconnected nature of modern engineering systems.

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>
> *Travis Fuerst, Associate Professor of Practice, Purdue*

Rather than rely on outdated file-based approaches or downloadable PDFs, Travis uses Anark Collaborate to deliver fully annotated 3D models in a browser-based format. This means that when updates are needed, they're made instantly—reinforcing the idea of a single source of truth and minimizing miscommunication.

Model-based Thinking Starts Here

From individual parts to complete subassemblies, students consume technical data via Anark Collaborate to complete their projects. Travis reinforces the concept of model-based definition (MBD) throughout the course, emphasizing that the 3D model is the authority—not the drawing. He explained this reasoning behind this approach, "The model is the authority. A drawing is a derivative. I show students both so they can see for themselves why the 3D model offers a better experience."

Student Experience and Outcomes

Each semester, hundreds of students engage with Anark Collaborate as part of their foundational coursework. This includes students from mechanical engineering, aeronautical engineering, and engineering technology. The course spans 16 weeks, with early assignments focusing on modeling individual parts and understanding design intent. By week 8, students have built their first assemblies,

and from weeks 9 to 14 they complete a final project where they model individual parts, and create sub assemblies using standard parts to build a small single piston engine.

Anark Collaborate plays a key role in these assignments by delivering rich, model-based content directly to students. All models are annotated and sometimes accompanied by static drawings, enabling students to compare traditional documentation with the dynamic 3D model experience.

Students also get exposed to critical modern engineering practices, including model-based definition (MBD), version control, and PLM integration. Fuerst encourages students to include Anark and Teamcenter on their resumes, helping differentiate them in a competitive job market.

And it's more than just helping engineering students find their first job. It's about helping them bring innovative ideas and skills to manufactures that continue to drive the industry forward. Fuerst leaves all of his students with an important piece of advice to help identify the best companies to go after, "If you're entering a company that still relies on 2D drawings, you should be asking why. That may be a sign they're behind the curve."

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To learn how Anark's solutions can help you stay ahead of the curve, visit https://anark.com