

CU-Boulder students put design, engineering work into practice at 'Idea Forge'

Collection of labs, workshops created by renovating former law library in Fleming Building

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[HTTP://WWW.DAILYCAMERA.COM/NEWS/CI_29309623/CU-BOULDER-STUDENTS-PUT-DESIGN-ENGINEERING-WORK-INTO](http://www.dailycamera.com/news/ci_29309623/cu-boulder-students-put-design-engineering-work-into)

With her head bent over the table, freshman Claire Farmer put the finishing touches on an electronic bike helmet, complete with light-up turn signals the rider can activate with the push of a button.

Farmer worked in the electronics shop within the Idea Forge, a new cross-disciplinary space opened last year by the College of Engineering and Applied Science at the University of Colorado.

The Idea Forge is a 22,000-square-foot collection of rooms, labs and open space where students can collaborate on class projects, tinker on their own creations and take workshops such as how to make a packable hammock or the basics of soldering.

"This was started with the idea in mind of supporting design work across the campus," said Daria Kotys-Schwartz, director of the Idea Forge.



Ken Liu works on building a drill-powered vehicle at the drop-in design lab at CU's Idea Forge on Tuesday. (CU's Idea Forge / Daily Camera)

Engineering leaders last year took the former law library inside the Fleming Building on the Boulder campus and gave it a quirky, industrial vibe.

Inside, a large, open common area boasts bright orange chairs, mobile whiteboards and tables on an overhead electrical grid.

There's also a conference room where students can write on the table with dry-erase markers, a machine shop, a welding shop, a "makerspace" and an "glitter and glue" room where students can build early prototypes of their designs out

of rubber bands, cardboard and other rudimentary materials.

Kotys-Schwartz said students are sometimes ill-prepared for the real world. She hopes to provide them with a space to make mistakes and experiment with engineering design before they head into jobs.

"Doing work problems is pretty. It has a solution at the end," she said. "Everything you need is in a single book. Design is ambiguous. You don't know if it's going to work. It's ugly."

She said another goal of the Idea Forge is to bring design work out into the open. Engineers are often inspired by what they see, she said.

Instead of tucking workshops away into rooms or corners, the Idea Forge brings them out into the common area so that everyone, even those students who aren't participating, can see and hear a little bit of what's happening.

"When you see someone else working on something, it changes the way you perceive things. It expands your capacity and the work you do," she said.

The Idea Forge's overall budget is just over \$1 million, Kotys-Schwartz said, which includes about \$20,000 for operating costs.

Inside the "makerspace," students can practice using drills, saws, sanders, sewing machines and a handful of other tools to make camping chairs, bar stools, cornhole boards, reusable tote bags and any other project they can dream up.

Students can try their hand at welding or take a project into the machine shop, where they learn firsthand if a project they've designed is feasible, said Becky Komarek, assistant director of Idea Forge.

"We're not training engineers to become machinists, but we are training engineers to understand what it takes so that when they make designs, they can be done more efficiently, they design things that can be built," she said.

Outside the machine shop, freshman Austin Bernard and sophomore Andrew Selenke put the finishing touches on a 3D-printed, remote-controlled car with a live-feed camera on top.

It's a collaborative environment that inspires students to engineer, even when they don't have a class assignment, Bernard said.

"I come here almost every other day to work on this or on side projects," Bernard said.

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