

“HEAVY METTLE UTC: Students use construction equipment simulators to move 'earth' !”

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Josh White, a 17-year-old from Brewer, stepped into a yellow Caterpillar excavator on a recent day, settled into the cab's seat, grasped the controls and began moving a load of dirt into a waiting dump truck.

He pushed the left controller to position the machine's arm and then the right controller to move the excavator bucket, easily grabbing a half-yard of earth.

The controls were the same as those found in heavy equipment at an actual construction site, but what White saw and responded to were images projected on a computer screen.



Students like White at the United Technologies Center in Bangor are using heavy equipment simulators - believed to be the first in the state - to learn how to operate construction equipment.

"It took me a few [tries] to get used to it," White said while using the machine. "It's pretty fun."

"There are two joysticks that look like the real controls," he said while fellow UTC students practiced on three simulator cabs and five portable simulators set up at the school, located on the Hogan Road.

"They spent a lot of money on the program and screens. A lot of the other students are coming over and saying, 'Can we try this?'"

The students on this day were practicing how to position the excavators and load 10 yards of soil into a dump truck. Each move they made was recorded by the computers which gauged how well they were accomplishing their task, said John Milligan, UTC heavy equipment operations teacher. Everything from bucket hits to efficiency and volume amounts were measured.

The eight simulators look like video games that could be found at a local arcade, but people shouldn't let the machines' appearance fool them - they are training tools, said UTC student Charles Dunlop, 17, a Bangor resident.

"It doesn't take long for them to catch on," he said of his students. "Especially nowadays, they're using Xbox and PS3s [video games] so their hand-eye coordination is strong."

Next year, software will be added so students can learn to use loaders and bulldozers as well.

The construction industry in Maine is facing a real shortage of workers, said Greg Miller, UTC director, which is one reason the heavy equipment operations course was created this year. The first class began in January.

"They just can't find enough skilled people to fill the job positions," Miller said. "Construction is one of the largest industries in Maine and is one of the industries that's still growing."

The simulators are "a good education tool and a good way to let people explore [the trade] in a safe environment," Miller said.

The leaders of Sargent Corp., a local construction company and a partner in the endeavor with the school, requested that UTC start the program. The decision to use simulators is cost-effective and they can be used year-round, where use of real equipment would be limited in the winter.

"They [students] can't injure themselves, they can't hurt the equipment," Herb Sargent, company president, said recently.

A warped fender on a \$200,000 excavator, which is the price Sargent usually pays for the real equipment, is not a small expense, he said.



The 10 simulator units, two of which are still under construction, cost the UTC-Sargent Corp. partnership a total of \$50,000 to \$75,000, Sargent said.

"What we're doing is helping the students to move himself or herself ahead in the industry by three or four years," he said. "It probably could increase their [initial] earning ability by 50 to 100 percent."

Sargent took several of his employees to UTC two weeks ago and they had an opportunity to use the simulators. "It's amazingly realistic," he said. "After you sit there for half an hour, you get some proficiency."

The simulators, modeled after those used by airlines to teach pilots, are realistic, but students still need time operating the real thing. Actual practice is still required.

"In May, we're going to go out and go into a gravel pit and we'll run [real] excavators, bulldozers and bucket loaders," White said.

"The simulator isn't meant for them to leave the school and go out and work," Milligan said. "It's so once they get on the work site they'll work safely and efficiently, and they'll know what's going on."

A big part of the heavy equipment operations class is centered on book work and covers Department of Transportation standards, how to survey and grade, and the differences in soil types, along with other construction instruction, Milligan said.

The class is "not just operating [the machines]," he said. "It's safely operating the machines. It's

preventative maintenance of the machines."

Learning federal Occupational Safety and Health Administration regulations is another huge part of the class.

"They're doing great," Milligan said of his students. "They're actually progressing faster than we thought they would proceed. As a whole, their attention levels have been better and attitudes have been better."

Both Dunlop and White took UTC's heavy equipment maintenance course before applying for the new class, and each has family in the construction business. The application process narrowed the list of students to 14, seven for the morning class and seven for the afternoon class. The groups meet Monday through Friday for 2 1/2 hours.

"You balance book work and the simulators to make it fun" to learn, Milligan said. "It keeps them interested all the time."

Sargent said the industry, construction companies and the students all benefit from the new program.

"To me, the key is it's an opportunity for young people," he said. "That's what it boils down to. We're trying to give young people here a step up."

White said that when he was a young boy a pipeline was constructed near his home. After watching the heavy equipment operate, he knew what he wanted to do later in life.

"It's something I've wanted to do since I was 10 years old," he said. "Plus, the paycheck is pretty good."