Case Study

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Davis Technical College

Once students do begin to program, they are able to benefit from the help provided by Surfcam Traditional to make the best choices for the job.

Surfcam is a market leading computer aided manufacturing (CAM) system for NC part programming. With unparalleled ease of use and sophisticated toolpath generation, it's the only CAM system you'll need for milling, turning and mill-turn machining.



Davis Technical College

Davis Technical College programs its CNC machinery with Surfcam Traditional and partners with industry innovators to bring the latest technologies to students

The machine shop at Davis Technical College is where practice and passion converge to hone the skills and creative drive that the manufacturing industry will always need. "I've told students that I can almost guarantee them a job if they complete our program," says Lead Machine-Tool Technology Instructor Troy Winchester, an 80s-era graduate of Davis Tech who spent several years in the manufacturing industry before joining the college as a staff member in the mid 1990s. "Even during the tough times, when industry has struggled, we've had over 90 percent job placement."

Based in Kaysville, Utah, Davis Technical College is fertile ground for the seeds of successful careers, planted by students of all ages and from varied walks of life. The college offers training in a wide range of disciplines, from culinary arts and cosmetology to cybersecurity, construction, dental assisting, firefighting, and many more. Students aged 16-19 are the youngest enrolled in the school's Machine-Tool Technology Program, including high-school students who already have their sights set on a specific career trajectory. "We had a high-school student who had three job offers and couldn't take any of them because he was still in high school," Winchester says. Those aged 21-30 — many of whom have held retail, food service, or construction positions — are the largest age group enrolled in the program. Among this group are numerous veterans of the U.S. armed forces. "These are students who have been in the work force and want to learn how to work smarter, not harder," Winchester says.

"Many of our students pursue certificate programs in our training and sometimes they are also pursuing additional education — often with a full-time job," says Director of Marketing and Community Relations Melanie Hall, noting that courses are competency based and open-entry, meaning that students need not wait for the beginnings of semesters to enroll.

To program its CNC machinery, Davis Tech has used the Surfcam Traditional computeraided-manufacturing (CAM) solution since the late 1990s. Once students master the basics of reading blueprints, reading and writing G-code, and using manual machinery, they move into the CNC realm. The college's machine shop houses ten manual mills, ten manual lathes, and 10 CNC machine tools — including mills and lathes by Okuma, Mazak, Haas and Bridgeport. In response to a changing industry landscape that includes ever more advanced machinery, the shop will soon add an Okuma mill-turn machine to its lineup.

"A lot of our students like to work with their hands, so they want to design something, make it and put it together," says Machine-Tool Technology Instructor Mark Dame, who has 25 years of teaching experience and joined the team at Davis Tech in 2010. "The mentality is that if you're a machinist, you work in a dark, dingy shop. In reality, you work with million-dollar machinery and make things that lives depend upon."

The machine shop also offers 3D-printing capabilities and utilizes a coordinate measurement machine by Hexagon Manufacturing Intelligence. Dame notes that the college has benefitted from the Okuma Partners in THINC Program, through which multiple industry partners work with Okuma technical staff to ensure the seamless interoperation of technologies.

As Vero Software is a Partners in THINC member, the college can be assured that Surfcam and Surfcam Traditional post processors will operate seamlessly with the school's Okuma machinery.



About The Company:

Name: Davis Technical College Business: Vocational education

Website: davistech.edu

Benefits Achieved:

- Assists students in making ideal programming choices, specific to each job
- Helps students learn how to use CNC software and machinery in a realistic work setting
- Helps students to visualize jobs, from start to finish

Comments:

"Once students do begin to program, they are able to benefit from the help provided by Surfcam Traditional to make the best choices for the job."

Mark Dame, machine-tool technology Instructor

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Because the software includes mill-turn programming capabilities, the machine shop will integrate Surfcam once the new equipment is up and running. Likewise, the school partners with Hartwig, a major machine-tool distributor, which further ensures performance quality in the shop.

Program coursework is generally delivered in a lab format, though Winchester and Dame customize content and conduct lectures to address particular needs. For instance, if students are struggling to master feeds and speeds, an instructor may deliver a lecture to address challenges. Among machining topics covered are drilling, pocketing, contouring, and cutter compensation, as well as machine setup and operation. "With any CAM system, there are questions that you have to answer, like depth of cut and speeds and feeds. You can't always use the automated settings, and so they have to understand how these things work before they begin learning how to program," Dame says. "Once they do begin to program, they are able to benefit from the help provided by Surfcam Traditional to make the best choices for the job."

Students spend the last three months of the program learning to operate CNC machinery programmed with Surfcam Traditional. As students exhibit different levels of computer literacy, programming coursework — like all other aspects of the program — are self-paced. However, virtually all students who are about to begin programming with Surfcam Traditional receive a three-day training introduction to the software. "I tell students that, to be successful in industry, you have to have mechanical aptitude and attention to detail — and you have to be a little bit of a perfectionist," Winchester says. "Students who like to work with their hands and have an interest in how things work tend to be more successful from the start, but they can all be successful if they do the work."

It typically takes full-time students about nine months to complete the program, which requires 960 hours of shop time. Those who complete the program earn certificates and are then free to either join the workforce or to transfer to four-year universities to further their manufacturing education. Job fairs and community relations play a significant role in student job-placement, and companies such as SpaceX, Rolls Royce, racing company Detroit Diesel and numerous others have hired Davis Tech graduates. The college ensures that it teaches the latest shop-floor technologies to best prepare students for the workforce.

"We meet with industry several times a year to make sure that the tools that we use to teach our students are relevant and are going to prepare them for industry," Hall says of efforts to ensure that content for manufacturing courses remains current. "Davis Tech stays connected to those employers. A lot of the time, our faculty are key to students being placed in jobs." After students are in the workforce, they may also return to Davis Tech for "upgrade" classes, or courses that are relevant to their career paths and that ensure that they receive training relevant to new developments in the industry.

Winchester and Dame note that machine-tool technology training also opens up a lot of career options that students don't necessarily think of when they enroll. Among those are machine-tool, cutting-tool and CNC software sales, as well as machine repair. "All of those areas can benefit from the abilities of our students," Dame says. In addition to learning pertinent job skills, Davis Tech students are taught workplace relations, job-seeking skills and resume writing, and they participate in mock job interviews to practice for the real thing.

"It's one of those really great symbiotic relationships: Students have objectives that they want to accomplish and our whole objective is to move them forward," Hall says." "We are very close to our students and work very closely with them, and they bring their own self-determination and goals to the table."











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Mark Dame Machine-tool Technology Instructor Davis Technical College

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