



Manufacturing program professor William Clarke, Ed.D, congratulates student Richard Phillips who just took and passed the the NIMS Level I certification test. "Only six more to go," Phillips says, happily.

Creating Craftsmen

A Look at San Bernadino Valley College's Manufacturing Education Program

Story and photos by C. H. Bush, editor

If you own or manage a machining job shop or operate a shop within a manufacturing facility, you know very well how difficult it is to find good employees. If you can't find people with ready-made machining skills, you're probably happy just to find people with simple abilities in arithmetic, reading and writing and a sense of responsibility sufficient enough to allow you to train them.

The big question for a lot of shop managers is: "Where can I find such people?"

One good source for Southern California-based shops is the manufacturing education program at San Bernadino Valley College, run by William (Bill) Clarke, Ed.D.

"I believe we have one of the best college-level manufacturing programs in the country," Clarke says. "We have several million dollars worth of advanced CNC machining

equipment for our students to use, and we're a NIMS-certified training facility. We're very proud of that."

NIMS Accredited Program

In case you don't know, NIMS is the acronym for the National Institute for Metalworking Skills, Inc. The organization was formed in 1995 by the metalworking trade associations to develop and maintain a globally competitive American workforce. The organization sets skills standards for the industry, certifies individual skills against the standards and accredits training programs that meet NIMS quality requirements.

"We're very proud of our NIMS accreditation," Clarke says. "We are one of only three schools in California that is a NIMS certification site. To be accredited, all instructors



Students concentrate hard to pass the NIMS Level I certification test. The test is given independently and graded online by NIMS.

in your program must have passed the NIMS certification tests. Our staff is made up of highly qualified people who work full-time as managers in the metalworking industry, and who have passed the NIMS tests. That means that when they teach, they're talking real-world shop practice. That's a requirement before they can teach our students."

NIMS operates under rigorous and highly disciplined processes as the only developer of American National Standards for the nation's metalworking industry accredited by the American National Standards Institute (ANSI).

Two Types of Programs

Like many community colleges, Clarke's program offers training for two types of students.

"One path is geared for adult education, for walk-in students who have decided they want to learn a marketable skill," he says. "The other path is for high school students who want to earn a two-year, Associate of Science degree in machine technology."

The adult education path gives the student enough knowledge to be able to get an entry-level job, but without the need for the employer to start totally from scratch in training them.

"The degree path is a strenuous program that can lead to NIMS certification," Clarke says. "Employers are really glad to get these students, because to complete the program, a student must show a lot of willpower and determination and achieve a high level of know how."

Adult Education Program

In Clarke's adult education program, students can earn certificates in six different stand-alone areas, including Machine Technology, Machinist Standard, Tool and Die, CNC Control, Mechanical Hydraulics/Pneumatics, which is training for equipment repair, and Basic CNC Operation.

"None of these programs have prerequisites," Clarke says. "A student can walk in off the street and say, 'Hey, I saw a shop with a bunch of high-tech CNC machines, and I want to learn how to operate them.' We sign them up and teach them the very basics they need for an entry-level job. Most of our adult programs require completion of multiple courses, except for the machine technology course, which is 25 hours of training using lathes, mills and spindles. The basic CNC operation program is 16 hours of training to prepare the student to operate a CNC lathe or mill. They're not machinists, but they're ready to be trained quickly as machine operators. No one can create a

machinist overnight, but any student who finishes one of these programs is ready to become a good employee."

Machinist Technology Curriculum

The Machinist Technology curriculum at San Bernadino Valley College is designed to prepare students for entry-level employment in manufacturing, according to the school's catalog. The courses train first-time students and retrain students already employed in the machine trades industry.

"Our curriculum was developed in collaboration with local industry to meet the NIMS standards," Clarke says. "We have support from large manufacturers, large machine shops, and a number of machine tool manufacturers. Haas Automation, for example, has been a great help to us by supplying equipment for our programs."

The college lists six different paths in its Machinist Technology program.



Richard Phillips, sets up a Haas VF-1 machining center.



Students Mark Deshon (holding book) and Jeff Woods study programming on one of two Haas SL-20 lathes in use at the college. Altogether the school has large arsenal of machines for student, including 2 Haas lathes, 2 Haas mills and a Haas simulator. The school has a large number of manual machines, as well as a high-speed Akia mill, a Brown&Sharpe CMM and a Mitsubishi EDM. Two more Haas machines are currently on order.

“The six are the same as in the adult program,” Clarke says, “and include Machine Technology, Machinist Standard, Tool and Die, CNC Control, Mechanical Hydraulics/Pneumatics, which is training for equipment repair, and Basic CNC Operation. Students working for an Associate of Science degree have to pass one of these programs with a grade of C or better, and they have to complete the general breadth requirements for the Associate Degree. Any student who finishes this program will be worth money to any employer.”

NIMS Testing

NIMS testing is now part of the Associate of Science degree at the college.

“By the time they get out of our two-year program, students have to have passed 7 NIMS certification examinations,” Clarke says. “The exams cover things like benchwork, layout, milling, drill press, surface grinding, turning between centers, turning chucking, CNC milling and CNC turning. These examinations are really tough. The students take them at a computer with no help from anyone except what’s stored in their brains. Passing these examinations is a real achievement that our students will never forget.

When they pass, it also means that our certified instruction has passed, too.”

The college currently has 183 students enrolled in its manufacturing programs. Of the enrollees, about 10-15 students take and pass one of the NIMS exams each semester. The different tests are given only after students complete required courses. Not all of the students go on to complete the courses, though, for a variety of reasons.

“We have a lot of students who are hired away from us while they’re still in the program,” says Clarke. “Usually they start working a lot of hours, so the amount of time they have available for the classroom decreases significantly. A lot of our students have families, and they really need the money to support them, which is why they came to us in the first place. Some of them come back once a week and try to complete their schooling, but it’s tough.”

Why has Bill Clarke spent 34 years working to teach manufacturing to students, when he could be doing many other things with his life?

“If you can ever see the pride in a student’s eyes on completion of a NIMS exam or on receiving a graduation certificate, you won’t have to ask,” he says. “It’s the most satisfying thing I’ve ever done. I love it.” ■