

PROGRAM REVIEW
Western Nevada College
A.A.S., Machine Tool Technology

I. Description of Program Reviewed

The Machine Tool Technology program provides training for students who plan to enter the machine trades field and upgrading for those in the field who desire additional skills. The program, which is offered on the Carson campus only, is competency based, allowing students to enter at their own level and progress at their own pace. Hands-on learning is stressed, allowing students to take as many laboratory hours as possible. The degree requires a total of 60 credits: 39 program requirement credits and 26 general education credits.

II. Review Process and Criteria

The A.A.S. and Certificate of Achievement in Machine Tool Technology were reviewed together 2009-2010 in order to identify strengths and challenges in terms of student success and satisfaction, recruitment, enrollment, curriculum, facilities, and scheduling. Institutional Research staff provided data used as evidence to support findings and recommendations.

The self-study process followed program review guidelines developed by WNC's Program Assessment and Review Committee (PARC). Internal and external reviewers provided feedback on the self-study report as well as findings and recommendations based on review of the self-study report, a tour of facilities, an exit interview with the President, and a focus group discussion with students with declared majors in the A.A.S. and certificate of achievement programs. A mathematics professor from WNC served as the internal reviewer, and an automotive technology teacher from Douglas High School served as the external reviewer.

III. Major Findings and Conclusions of the Program Review

The commendations, findings, and recommendations that resulted from this program review relate to the Machine Tool Technology program in general and not the individual degree or certificate programs specifically.

Commendations

- Of the two machinist programs in Nevada, WNC offers the only hands-on program.
- Local industry supports enrollment of high school students with scholarships of \$250 per semester.
- The tenured faculty member connects well with students and evaluates students to match their skills with employers' needs.

Findings and Recommendations

Recommendations (in italics) are attributed as follows: Program Review Team [P]; Internal Reviewer [I]; External Reviewer [E].

- Students are exposed to a dust hazard because grinders are used without a dust collection system.

Recommendation: Make improvements to the machine shop to eliminate the dust hazard either by adding 25,000-35,000 square feet to the building and installing a dust

collector at a cost of \$2 million, by moving grinders into a separate room currently used as a classroom and installing a dust collector, or by simply installing a dust collector. [P,I,E]

- Students would be better equipped to enter and succeed in the workforce if the program followed apprenticeship training standards valued by manufacturers not only locally but also statewide and nationwide.

Recommendation: Work with local manufacturers to identify or develop a set of standards for skills certification. Look into skills certification from the National Institute for Metalworking Skills (NIMS) for program graduates. [P,I,E]

Recommendation: Seek program accreditation through NIMS. [I]

- Bobcat, the computer-aided manufacturing software currently taught, is not used in industry as much as it once was, and students do not have access to Mastercam for Solidworks, the current industry standard software.

Recommendation: Seek funds to upgrade computer-aided manufacturing software to the industry standard. [P,I,E]

- Classes in MTT 292B and 293B (Computer-Aided Manufacturing I and II) as well as in DFT 110B (Blueprint Reading for Industry) and CONS120B (Blueprint Reading and Specification) have been canceled repeatedly due to low enrollments during the five-year review period.

Recommendation: Integrate a blueprint reading component into a new CAD/CAM or CNC course. [I]

- Although students are regularly assessed on sets of competencies, these assessments are not formally documented in a systematic way. In addition, students often lose skills after passing competency tests if they don't use the skills on a regular basis.

Recommendation: Perform and document cumulative assessment of competencies. [I,E]

- Manufacturers want to hire employees who have mastered all the basic skills, and Nevada lacks a full-time (five days per week, eight hours per day) apprenticeship program that would last one year and provide the intensive training in the basics that employers value.

Recommendation: Assess the need for an intensive daytime apprenticeship program. [P,I,E]

- The use of wire electrical discharge machines (wire EDM) in manufacturing has increased greatly, creating the need for machine tool technology students to acquire the skills to operate them.

Recommendation: Propose a grant to purchase a used wire EDM. [P,I,E]

- Although students express their desire to take machine tool classes in the summer, currently none are offered.

Recommendation: Offer machine tool classes during the summer. [E]

- Transportation issues present challenges to high school students wishing to attend WNC.

Recommendation: Recruit high school students from Douglas, Lyon and Washoe counties and continue to work with schools to solve transportation issues. [I]

- Some high school students have enrolled in machine tool technology classes as a way to make up for credit deficiencies even though they are not interested in machining for a living.

Recommendation: When recruiting from high schools, screen out students who are credit deficient and not seriously interested in the field. [P,I,E]

IV. Descriptive Statistics

A. Number of students with declared major in the program area:

2009-10 44 (does not include summer 2010)

B. Number of graduates from the program for the following years:

2007-08 2

2008-09 1

2009-10 3 (partial data for spring 2010; no data for summer 2010)

C. Headcount of students enrolled in any course related to the program (duplicated):

Fall 2009 202