

Thursday, February 28, 2013

To: Higher Education and Employment Advancement Committee

From: Peter S. Angelastro, Ph.D., Academic Division Director, Science, Technology, Engineering and Mathematics

Subject: Written Testimony Regarding Proposed S.B. No. 476: An Act Requiring Input from Local Manufacturers in Developing Manufacturing Technology Programs at the Regional Community-Technical Colleges

Naugatuck Valley Community College (NVCC) was granted funds by the state to establish the Advanced Manufacturing Technology Center (AMTC) and signed a Memorandum of Understanding (MOU) to meet certain goals and maintain the curriculum designed by Asnuntuck Community College during the 2012-2013 academic year.

As of February 27, 2013, the NVCC AMTC is in a position to meet the goals set by the MOU. The MOU also states that "The College shall also seek guidance and support for the Advanced Manufacturing Technology Center by holding regular meetings with the College's own Manufacturing Industry Advisory Board."

NVCC has established an AMTC Advisory Council of forty-one members. The Council has convened multiple times to discuss a variety of issues including the formation of the AMTC, the progress of students and internships, and determining the Phase II plan for utilization of the second round of state bond funding.

The Council made recommendations on which equipment to purchase and to modify course content based on the needs of the Waterbury-area manufacturers. The AMTC staff developed a list of equipment (appendix A) and modifications of course content (appendix B) that would meet the recommendations of the Council and would position the students to be prepared for the demands of the workforce upon graduation.

The NVCC AMTC hopes to procure the equipment and modify the course content as recommended by the Council for the 2013-2014 academic year.

Respectfully submitted,



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Appendix A: NVCC AMTC Equipment Needs

Equipment	Cost	Quantity	Use
Electrical Discharge Machine (EDM-- wire type)	Est. \$200,000	1	Precision machine used extensively by Waterbury and Danbury area manufacturers for machining complex parts
Deep Draw Press - Farrell type 10 size	\$25,000 for used equipment*	1	Used to produce high volume of high precision, complex parts. Widely used in manufacturing operations throughout the greater Waterbury area.
Digital Optical Comparator	Est. \$23,000	2	Used extensively by area manufacturers, compares machined parts to its CAD file to prove part accuracy.
Fanuc CNC Simulators	Est. \$5,000	1	Provides access for 16-32 computers. CNC software simulator used as a training aid for machine operations simulation. Provides complete G-code-based 3D CNC verification and machine simulation support for all Fanuc CNC models.
Siemens Simulator Software	Est. \$5,000	5	Simulator for training on the Siemens 5-axis CNC
Dumore tool post grinder	Est. \$1,400	3	Attachment for existing grinding machines to produce high tolerance tooling. Used extensively in Waterbury area.
Tapping head attachment	Est. \$1,200	3	Attachment for milling machine to cut threads of a nut
Cognex Vision System	Est. \$14,000	1	Used widely in industry for quality control purposes to allow inspection for defects, dimensioning and measurement of machined parts
ProtoTRAK TRL 1630SX Lathe	Est. \$36,000	1	Replace non-functional machine currently on the floor. CNC Lathe used extensively by Waterbury-area manufacturers
ProtoTRAK controller--retrofit current equipment	Est. \$19,000	1	Replace outdated/malfunctioning controller on miller.
Darex Automated Sharpening system XT300	Est. \$5,000	1	Equipment needed to sharpen/ repair drill bits & end mills. Cost effective to repair internally, rather than send out for repair or by new. Should pay for itself in one to two years.
Equipment Total--estimate	Est. \$334,600		
Infrastructure (electrical and rigging)	Est. \$50,000		
TOTAL	Est. \$384,600		
Add 10% contingency	Est. \$423,060		

NOTE: These purchases have been recommended by the AMTC Advisory Council; all will fit in existing space. *This is for a used piece. Since the machine will not be run for production purposes, new piece is not necessary.

Appendix B: NVCC AMTC Course Content Modifications (to be effective Fall 2013)

1. Embed information about manufacturing materials into the framework courses of MFG*151 Drill Press and Saw, MFG*152 Grinding and MFG*153 Benchwork during the level I program.
 - Reasons:
 - AMTC Advisory Board strongly recommended teaching properties of materials.
 - Instructors noted too much time allocated to these courses for the amount of material to be covered.
 - Benefits:
 - Students gain knowledge regarding the metals with which they work.
 - Students more prepared for job placement in Waterbury area.
2. Consolidate BIS*6080 Lean Manufacturing Principles (non-credit) from Level I into QUA*114 Principles of Quality Control during Level II program.
 - Reasons:
 - Amount of Lean covered was too great.
 - Lean principles are closely related to quality control in manufacturing.
 - Merging will demonstrate how Lean principles directly apply to quality control.
 - Benefits:
 - Student outcomes increased.
 - Fewer non-credit courses save students money because financial aid does not apply to non-credit courses.
 - Gained time can be used during Level I for modification #3.
3. Consolidate MFT*5237 Coordinate Measuring Processes (non-credit) from Level II into MFT*5010 Metrology (non-credit) during Level I program.
 - Reasons:
 - The Coordinate-Measuring Machine (CMM) is used for metrology.
 - Merging will allow instructors to correlate different methods of metrology.
 - Students introduced to the CMM earlier so they can use the CMM for more projects.
 - Benefits:
 - Student outcomes increased.
 - Fewer non-credit courses save students money because financial aid does not apply to non-credit courses.
 - Gained time can be used during Level II for modification #4.
4. Modify MFT*5239 CNC Projects (non-credit) to a Special Projects course (non-credit) for Level II program.
 - Reason:
 - The equipment requested in appendix A would be introduced in addition to CNC project time.
 - Benefits:
 - Students will be introduced to machines found in Waterbury area shops.
 - Students more prepared for job placement in Waterbury area.

NOTE: These changes were recommended by the AMTC Advisory Council.