Agenda Item 2.b

Program Proposal
Associate in Industrial Technology
Major in Mechatronics Technology
Piedmont Technical College

Summary

Piedmont Technical College requests approval to offer a program leading to the Associate in Industrial Technology degree with a major in Mechatronics Technology, to be implemented in Fall 2009.

The program planning summary was received by the Commission on Higher Education on August 29, 2008. The program planning summary was reviewed without substantive comment and approved unanimously at the meeting of the Advisory Committee on Academic Programs on January 15, 2009. The Piedmont Technical College Area Commission approved the program on January 27, 2009. The full program proposal was received at the Commission on February 12, 2009.

According to the proposal, the purpose of the program is to meet the growing demand for graduates who have technical training in electronic, fluid power, programmable logic control, and robotics. Advanced training in these areas is needed to operate highly technical machines and to support processes in industry that allow companies to compete successfully in a global economy.

Also according to the proposal, the creation of this program is in direct response to needs expressed by such South Carolina employers as BMW which requested in 2006 that a group of technical colleges in the upstate study whether a common curriculum could be developed to meet the company's demand for industrial maintenance technicians. In response to this request, a regional consortium called the Upstate Alliance for Technical Training was formed and subsequently surveyed employers throughout the service areas of each of the member institutions (Greenville Technical College, Piedmont Technical College, Spartanburg Community College, Tri-County Technical College and York Technical College). The survey indicated there was significant demand for highly skilled technicians in the service areas of all the consortium's member institutions. Moreover, in the Piedmont Technical College service area alone, employers anticipated hiring 140 full-time maintenance technicians with high skill levels over the next three years.

The institution notes that the proposed program is primarily designed as a terminal degree program. In 2008, Piedmont Technical College replaced an Industrial Maintenance Mechanics certificate program with two new Mechatronics certificates

(Mechatronics Technology I and II) in order to create student interest sufficient to meet the needs of employers in the area and as a result, student interest and enrollment in both Mechatronics certificate programs have increased substantially.

Piedmont Technical College is the first of the technical colleges to seek approval to offer this type of program in South Carolina. The institution will continue to offer the two existing Mechatronics certificate programs concurrently with the proposed associate degree, and students will have the option to combine the two certificate programs with additional coursework in general education in order to earn the proposed associate degree. The institution states that while there are no formal articulation agreements currently established for the program, a one-plus-one articulation with the four other member institutions of the Upstate Alliance for Technical Training is being discussed.

Admission requirements for the program will be consistent with those for acceptance into a course of study in the college's other Industrial Technology Associate Degree programs. The curriculum for the proposed program in Mechatronics Technology will consist of a total of 71 credit hours and graduation will require a minimum 2.0 GPA. The program design follows state requirements for a minimum of 15 credit hours of general education, a minimum of 15 credit hours of core subject area content, and an additional 30-45 hours required for graduation. No new courses will be added to the college catalog as all required courses were added in Fall 2008 at the time of the implementation of the two new Mechatronics certificates.

The program will require a total of five faculty and staff members. This number includes three full-time faculty members, including the department head, who currently teach within the department (.75 FTE each). The department head will divide time among the proposed program and other engineering and industrial programs (.25 FTE). The institution states that no new faculty members or staff will be required for the proposed program in the first three years of its implementation.

According to the college, the proposed Mechatronics program will not require any new physical plant space during the first three years of its implementation and no major equipment purchases will be made during the first three years since equipment previously purchased for the certificate programs will also be used in the associate degree program.

The proposal states that adequate library and learning resource services are available to students of the program. In addition to online periodical databases and reference books available to students, the college maintains an extensive library web site offering information about services and materials, access to the library catalog and on-line resources, and instructional materials. Current holdings include relevant titles published within the last two years and plans are in place to expand resources in support of the proposed program. The library contains books and audiovisual resources related to the basics of maintenance training, other resources specifically related to Mechatronics

training, and owns a collection of more than 49,000 full text e-books, 59 titles of which relate to Mechatronics. The proposal also recognizes the vital role PASCAL plays in providing access to library resources and states that students and faculty are able to request books related to Mechatronics and receive them within two-to-three days at no expense to the requestor. The institution participates in another interlibrary loan program which allows books or articles to be requested from libraries nationwide.

The proposal states that since the Accreditation Board for Engineering and Technology (ABET) offers certification to Mechatronics programs that are usually offered through an engineering department, it will not seek formal accreditation of the program since at Piedmont, the proposed program will be offered through the Industrial Technology department.

As shown in the program proposal's table of costs, total costs for the operation of the program for the first three years are estimated at $32,100. These costs are found in the categories of supplies and materials ($30,000) and library resources ($2,100).

Total enrollment in the new program is estimated in the proposal at 25 (28.7 FTE) in the first year, rising to 43 (47.4 FTE) in the second year, and 48 (52.0 FTE) in the third year. If the enrollment projections are met, the program will meet the Commission's program productivity standards for enrollment and degrees awarded.

Shown below are the estimated Mission Resource Requirement (MRR) costs to the state and new costs not funded by the MRR associated with the implementation of the proposed program for its first three years. Also shown are the estimated revenues projected under the MRR and the Resource Allocation Plan as well as student tuition.

Estimated Program Costs and Revenue

	Estimated Program Costs		Estimated Program Revenue				
	(A) MRR Cost	(B) Other Costs*	(C) Actual State Funding	(D) Tuition	(E) Additional Revenue	(F) Total Revenue (C+D+E)	(G) Total Revenue - Total Costs (F-(A+B))
Year 1	$225,242	$0	N/A	$88,295	$0	$88,295	-$136,947
Year 2	$372,173	$0	$126,524	$146,446	$0	$272,970	-$99,203
Year 3	$408,578	$0	$209,388	$160,595	$0	$369,984	-$38,595

*Includes costs of an extraordinary nature not otherwise included in the MRR cost calculation (e.g., costs for a new building required to support a program).

These data demonstrate that if Piedmont Technical College can meet the projected student enrollments and contain costs as they are shown in the proposal, the program will not be able to cover new costs with revenues it generates through the MRR and tuition by the third year of its implementation.

In summary, the proposed new program is highly needed and will be a unique offering among all technical colleges in the state as there are no other such Associate Degrees in Industrial Technology with a major in Mechatronics Technology offered within the South Carolina Technical College System. The proposed program will support economic growth and development in a service area that includes Abbeville, Edgefield, Greenwood, Laurens, McCormick, Newberry, and Saluda counties. Finally, obtaining such a degree should enable graduates to command above-average entry level maintenance technician salaries of between $30,000 and $40,000 per year.

Recommendation

The staff recommends that the Committee on Academic Affairs and Licensing commend favorably to the Commission the program leading to the Associate in Industrial Technology degree with a major in Mechatronics Technology at Piedmont Technical College, to be implemented in Fall 2009, provided that no "unique cost" or other special state funding be required or requested.