

# 2006 -2007 Annual Assessment Report

## M.S. in Technology Management

Division of Applied Science and Technology

College of Information Technology and Engineering

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Annual Report  
M.S. in Technology Management  
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**I. Assessment Activities**

**A. Program Goals**

1. Maintain a curriculum that is up to date and effective, with new courses added and old courses deleted as needed. Focus on meeting the needs of the students, offering high quality courses that improve students' skills and effectiveness on their jobs, increase their opportunities for advancement, and prepare them for further education.
2. Review the program annually regarding courses and Areas of Emphasis. Obtain feedback from program faculty, including adjuncts, in order to improve the content of courses.
3. Promote faculty development so that they keep current with activities in the field of Technology Management. This will be in the form of professional organization membership, conference attendance, and the publication of journal articles.
4. Attract qualified students into the program. Maintain a high level of student retention. Maintain or grow student enrollment.
5. Reach out to the surrounding community in the form of local organization membership, leadership, and participation. Increase the awareness in the community of the Technology Management program through its students and its faculty.
6. Develop objective means of measurement. Methods may include benchmarking and program certification from an independent organization.

**B. Learning Outcomes**

1. A key form of input came in talking with current students and current employers. Students are looking for education and skills that will help them move up the organizational hierarchy, or to obtain a better position with another employer.

Feedback was also obtained by talking with local companies, both current and prospective employers. Employers were generally very favorable regarding the coursework that was required in the program. Employers were interested in their employees having opportunities to make oral presentations, because presentation skills were considered to be of great importance. Also, the opportunity to work on projects in

teams was thought to be a valuable learning experience by employers. Some companies were also interested in their employees learning project management skills. Our existing program offers many opportunities to practice all of these.

The following modifications were made to the Technology Management curriculum during the past year.

- a. Final approval was received for the Pharmacy emphasis in collaboration with faculty and administrators from the University of Charleston's new School of Pharmacy. The first set of students will be admitted to the emphasis in Fall 07.
  - b. The option of taking either TM 615 Information Technology Strategies or EM 694 Engineering Law was added to the curriculum. Previously, students were required to take TM 615.
  - c. The Manufacturing Systems Emphasis was revised from four required courses to two required courses, Computer Integrated Manufacturing and Modern Manufacturing Concepts, and two courses selected from four course options.
2. The CITE Faculty Course Assessment Report was used again this year which provides a complete feedback loop for each course. Several changes were made to courses as a result of this feedback system, including changes of textbooks and revisions of material covered.
3. Several activities occurred this year to support faculty development. Neal Lewis attended the annual conference of the American Society for Engineering Management in Huntsville, AL, during October 2006. Dr. Lewis also had a paper accepted to the IERC (Industrial Engineering) conference in May 2007.

The program coordinator (for 2006-07 academic year) was a member of the International Association for the Management of Technology (IAMOT), American Institute of Chemical Engineers (AIChE), and the International Society for Pharmaceutical Engineering (ISPE).

4. During academic year 2006-2007, 7 new students joined the program. Student retention continues to be high. Through May of 2007, fifteen students graduated from the TM program.

The program currently had 47 active students in Fall 05 and had 42 active students in fall 06 according to the Institutional Research and Planning web page (page title: Local major headcount and FTE). The number of active TM students has been relatively stable over the past 3 years. Student enrollment is monitored during the registration period, and students that have not registered approximately one week prior to the beginning of classes are given a reminder, either by email or by phone.

5. Several companies were visited during the school year in order to develop community relations and to provide employers with information regarding technology management and the College of Information Technology and Engineering. These companies include Alcon Laboratories and Toyota. Several area hospitals joined discussions about the program, including CAMC and St. Mary's. The campus at West Virginia University – Parkersburg was also visited, as well as the University of Charleston.

The TM coordinator has become active in the Charleston chapter of the American Institute of Chemical Engineers, and holds an office in that organization. The coordinator was also a guest speaker at the West Virginia chapter of the Project Management Institute.

6. The certification of Technology Management programs was again explored during the year. The American Society for Engineering Management (ASEM) offers a 'certification' of engineering management and management of technology programs. Budget funds were requested for the academic year to pursue ASEM certification, but funding was again not received. We will continue to request funding in the future.

### **C. Results**

The Technology Management program is healthy, and is maintaining roughly steady enrollment. We continue to attract qualified students from the region, have a high retention rate, and are graduating people in record numbers. However, recruitment of new students is a priority item, or we will face declining enrollments.

The number of TM classes remains steady, and we continue to have adequate enrollment in classes. Qualified adjunct instructors are available to teach classes, and we are increasing the use of adjuncts as additional classes are being offered.

We have been working with the LEAP intensive English program for international students, and have offered provisional admission to some of those students pending the successful completion of their English language studies. Of concern is whether the GRE/GMAT test scores of students completing LEAP is an indicator of success in the MS in Technology Management program. An evaluation of international students and their test scores is needed.

We are also working with the University of Charleston (UC) to recruit pharmacy students in the new Pharm.D. program at the UC. The new Pharmacy area of emphasis has been approved as part of the effort with the UC School of Pharmacy.

Many of the TM courses are video linked between Huntington and South Charleston. The plan to test an alternative delivery method, using Breeze software, to have one class that is available live on the Internet, resulted in our broadcasting one course in spring of 2006. In fall 2006, TM 660 Computing and Information Systems Technologies was broadcast using Breeze. No one attended the course face-to-face; they all participated through the internet using Breeze. The instructor is very technologically adept and he

encountered issues, especially during the first several weeks of the course and he needed additional technical support. Some students had difficulty with employer firewalls and Internet connections. For Breeze to work well, there needs to be a powerful instructor workstation available and also technical support available for the students primarily during the first couple of weeks of the course. It is due to the technical expertise of the instructor and support from ITV that the course was a success.

## **II. Plans for the Current Year**

The cooperative schedule with University of Charleston's School of Pharmacy will be finalized, with the plan of minimally impacting the current course offerings.

The Health Care Technology area of emphasis will be analyzed and possibly planned. As it currently stands, the new emphasis of 4 courses will require two new courses to be developed. One course, Health Care Informatics, already exists. The second course would be HCA 600, The Health Care System, offered by the Lewis College of Business. LCOB is interested in working with us on the area of emphasis, and the course will be available to CITE students. The Health Care emphasis will replace Biotechnology, which will be eliminated.

We will again check on interest from BVBB in Bangalore, India. Now that North Central Association of the Higher Learning Commission has accredited Marshall University, we should be able to explore the possibility of offering Technology Management in India.

The courses which comprise the TM program need to be reviewed. The TM program began at Marshall in 1996 and a thorough review is due, especially with the constant changes in technology.

The Technology Management Professional Certificate also needs to be reviewed; possibly decreasing the current required 24 credit hours. Most professional certificates are 12 to 18 credit hours.

There is continued interest in offering the Technology Management degree in Beckley, WV and in Parkersburg, WV. The WVU-Parkersburg campus has a distance classroom, and could be linked with our video network. We need to decide which type of technology we are going to pursue in the future: video-link with equipped classrooms or pursue classes that are live on the Internet. Discussions regarding technology strategy will be held with interested parties.

### **Plans for Academic year 2007-08**

We will design and implement an exit interview to be held with all TM students the semester they plan to graduate. Exit interviews were implemented on the undergraduate

level in CITE spring 2007 and valuable information was obtained. The undergraduate interview template will be used as a starting point for designing the TM exit interview.

### **III. Assistance Needed**

There is currently one full-time faculty member to advise the 42 majors in TM. An additional full-time faculty member is needed to help advise, and to increase the robustness of the courses. The work with the UC School of Pharmacy recruits students into existing classes, and the additional faculty member could help teach some of the eight TM core courses.

### **IV. What we have learned through this process.**

The assessment process serves to monitor the relevance of the technology management program to its students, the student's employers, and the regional community at large. The program is on track, but needs to stay flexible in order to meet the changing needs of its customers. Continuous feedback is needed in order to stay abreast with changing technologies and changing customer expectations.

<b>Student Outcome</b>	<b>Person or Office Responsible</b>	<b>Assessment Tool or Approach</b>	<b>Standards/Benchmark</b>	<b>Results/Analysis</b>	<b>Action Taken</b>
Evaluate a company's financial status	TM 612 Economic and Financial Analysis instructor	Test questions on Exam one	Class project and test answers to designated questions show a quantifiable understanding of a company's financial status.	Results not available due to departure of program coordinator.	Ensure Faculty Course Assessment form is completed for each course.
Demonstrate the ability to work successfully on a project team.	TM 610 Technology Planning instructor	Student feedback of team members	Verify all students were contributing members of student teams.	Students were very candid in evaluating each other.	Remind students at midterm their peers would be reviewing their contribution.
Provide professional presentations	TM 630 Quality and Productivity Methods instructor.	Oral presentations in front of cameras.	Professional presentations based on business expectations.	Results vary by individual. Presence of cameras (due to videolink and internet) is especially difficult for people unaccustomed to high tech delivery modes.	Students were tested using presentations over the internet, with most students at home or at work.
Know how to weigh the cost/benefit of technology decisions	TM 612 Economic and Financial Analysis instructor	Questions on Exam two.	Requires the understanding of the time value of money.	Results not available due to departure of program coordinator.	N.A.

Be able to write a comprehensive project proposal	Advisor	TM 699 Capstone project course	Professional proposal is required prior to enrolling in TM 699.	Results vary with the individual. Some students require multiple versions before acceptance.	Discussions about TM 699 Capstone project began in the Program Introduction Seminar, which students take as their first course.
Develop and execute an applied technology project and present the results orally and in writing.	Advisor	TM 699 Capstone project course	Evaluated by a three member committee holding graduate faculty status.	Results not available due to departure of program coordinator.	Update the sample TM capstone projects listed on the college web site so students can see more recent project examples. .