

# **Academic Outcomes Assessment Task Force Report**

**Update**

**March 1, 2007**

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## **Academic Outcomes Assessment Task Force Report**

### **2006/2007 Task Force Members**

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### **Progress Report: Academic Outcomes Assessment, Spring Quarter, 2006- Winter Quarter, 2007**

The formal charge of the Academic Outcomes Assessment Task Force is to champion and facilitate outcomes assessment across the RIT colleges and programs, and continue to build on and implement the assessment plans developed as part of the 2002 Periodic Review Report (PRR). (<https://www.rit.edu/~accredit/2006/documents.html>)

The Academic Outcomes Assessment Task Force provided a report for the Middle States re-accreditation review in May 2006 documenting our progress in executing the assessment plans described in the PRR. The Academic Outcomes Assessment Task Force continued to meet in the 2006-2007 academic year to share strategies and address questions regarding the outcomes assessment efforts in each of the colleges and to prepare an update of our progress in developing and utilizing student outcomes assessment to enhance curricula and instruction.

Each of the eight colleges continued assessment efforts since the initial report to Middle States Accreditation Team in May 2006. Data collection continued for all existing

outcomes assessment plans (Winter Quarter, AY 2005-2006, Spring Quarter, AY 2005-2006 and Fall Quarter, AY 2006-2007) and when new programs were developed, outcomes assessment plans were part of the curriculum design. When sufficient data were available, programs focused on applying the results of the assessment efforts to improving curriculum and instruction with additional assessment designed to determine if the intervention will result in enhanced student learning. Below is a summary of the progress made by each college in relationship to Standard 14 of the review process. See the Appendix A for an update report from each college for details.

### **Standard 14 Assessment of Student Learning**

The Academic Assessment Task Force, as part of the Assessment Subcommittee is responsible for responding to Standard 14 – Assessment of Student Learning and the three parts of charge question 1.

#### Standard 14: Assessment of Student Learning

##### Institutional Context

“RIT’s academic programs are application-intensive,” the *RIT Periodic Review Report Executive Summary, June 2002* states. “From its founding, the RIT education has emphasized student mastery of current, practical, and marketable knowledge and skills in technology-based careers. The historical emphasis on applications and our resulting experience in measuring ‘what students can do’ has made us particularly respectful of concrete evidence of student learning.”

Assessments of RIT as a whole and of student learning in particular build on and complement this tradition. Our commitment to student learning and student success requires systematic and embedded assessment practices at every level and across all units. *A Call to Action*, the January 2005 implementation plan for our Strategic Plan, details seven themes that contribute to student success at RIT: Scholarship, Community, Student Support Services, Global Society, Faculty and Staff Performance Expectations, Curricular Flexibility, and Experiential Education. Intentional and continuous assessment across these areas is vital.

### Charge

This subcommittee and its task forces are charged to gather and analyze information relating to assessment plans and practices across the university.

Charge questions include the following:

1. Do we ensure that all academic programs have appropriate goals and assessment plans based on student learning outcomes? Describe what evidence is used and how this evidence leads to the continuous improvement of educational practices, advising, teaching and learning. As an Institute are we supplying the appropriate resources and technological support for these assessment efforts?

*RIT Self-Study Design*

<https://www.rit.edu/~accredit/2006/documents.html>

### **Charge Question Responses: Update**

#### **Charge Question Part 1 Ensuring academic goals and plans for all programs**

*Do we ensure that all academic programs have appropriate goals and assessment plans based on student learning outcomes?*

The same process continued at the department, college and institute levels to support the assessment process. As reported in May 2006, an academic assessment task force has been in continuous session since 2002 and contains representatives of all academic units. The members are charged with facilitating and developing assessment in their home college/academic unit. The task force continues to be a primary impetus and coordinating body for assessment across campus. It provides a forum to share ideas and best practices, identify potential collaborations, recommend institute level solutions, establish submission timelines, and coordinate academic assessment activities across the campus. The members worked with their college faculty and support staff to develop and implement assessment from the 'ground up' in the colleges. While there are some organizational variations in college structure, in general individual faculty participate in the intended learning outcomes at the course level; program chairs and their faculty are responsible for building program

outcomes, monitoring, analysis, results and continuous improvement; college administration is responsible for assessment oversight, college-wide systems and institute level challenges.

In support of assessment, RIT Academic Senate, Institute Curriculum Committee, and Graduate Council developed and implemented curriculum processes that require all new academic proposals to include outcome assessment plans; all new courses approved by college curriculum committees must include intended learning outcomes. All existing course outlines had to be re-written to include intended learning outcomes. At this time, there are very few courses that remain active that have not been revised. See Table 1 for the percentages of completion in each college and the progress made from Winter Quarter, 2006 to Winter Quarter, 2007.

### **Charge Question Part 2 Evidences**

*Describe what evidence is used and how this evidence leads to the continuous improvement of educational practices, advising, teaching and learning.*

Appendix A contains the executive summary update of each college's assessment implementation. Each college's individual program reports for the second round of assessment completed in November 2006 is provided in separate binders housed in Wallace Memorial Library, Room 1470, during the Middle States Association visit. Programs in each college are at different phases of the assessment cycle. Some colleges have completed new program proposals that are in the curriculum review process. These new programs include outcomes assessment plans as part of the program proposals and learning outcomes are included in all new course outlines. The assessment process is now clearly embedded in the curriculum development and review process and the Institute Curriculum Committee reviews assessment plans with an eye for substantive assessment plans that have the potential for

yielding data that can be used to improve curriculum and instruction. Some Colleges are implementing new programs and have just begun data collection. Other programs have completed a round of data collection and are focused on refining assessment measures and discussing how to apply the results to improving instruction. Finally, other programs have completed a full cycle of data collection, applied the results to making improvements in courses and instruction and completed a second round of assessment. The focus of this update review is to examine the progress in completing the revision of all course outlines to include learning outcomes and our efforts to apply the results of outcomes assessment to improve instruction.

### **Progress on Course Outline Revisions**

Table 1 summarizes the course outline initiative to incorporate intended learning outcomes into existing courses and presents the change from the last report in May, 2006. The college executive updates (Appendix A) contain complete details. Several colleges have noted that the process is proving to be a vehicle for updating their course portfolio and discontinuing courses no longer offered.

**Table 1**

<b>Course Outlines revised w/ Intended Learning Outcomes</b>	<b>Outlines Complete</b>	
	<b>2006</b>	<b>2007</b>
College of Applied Science and Technology	95%	95-100%
College of Business	98%	99%
Kate Gleason College of Engineering	95%	95%
College of Science	70%	93%
National Technical Institute for the Deaf	94%	99%
B. Thomas Golisano College of Computing and Information Sciences	66%	90-100%
College of Liberal Arts	70%	70%
College of Imaging Arts and Sciences	100%	100%

**Progress on Applying Results to Improving Curriculum and Instruction**

Table 2 summarizes the programs in each College that have progressed to the stage of applying their results to improving instruction. See the college Update Reports in Appendix A for a discussion of the revisions made and see the college's individual program reports in for the full details.



<b>Table 2 Colleges and Programs Applying Outcomes Assessment Results to Improve Curriculum and Instruction</b>		
College	Programs	
College of Imaging Arts and Sciences (CIAS)	All programs met or exceeded NASAD accreditation standards, 2005. Complete program review every 4 years.	
E. Philip Saunders College of Business (EPSCOB)	Managerial Accounting Course Revised AASCB Accreditation. The plan is to assess all program goals on a 2-3 year rotating basis.	
Kate Gleason College of Engineering (KGC OE)	Computer Engineering (BS) Electrical Engineering (BS) Industrial Engineering (BS) Mechanical Engineering (BS) Microelectronic Engineering (BS) All undergraduate engineering programs are accredited by ABET, August 2005.	
College of Science (COS)	General Education: Calculus, Chemistry, and Physics Degree Programs: 14 BS degrees, 8 MS programs, and 1 Ph.D. completed first cycle of data collection, analyses, and future steps.	
National Technical Institute for the Deaf (NTID)	Administrative Technology Support Art and Computer Design Laboratory Science Technology MS in Secondary Education Student Life Team Speech and Audiology 6 of 9 programs applied results to improve instruction.	
T. Golisano College of Computing and Information Science (GCCIS)	Applied Networking and System Administration (BS) Software Engineering (BS) Computer Science (BS, MS) Information Technology (BS)	
College of Applied Science and Technology (CAST)	13 undergraduate programs and 10 graduate programs have completed 2-3 cycles of data collection and analysis. All Engineering programs are ABET Accredited.	
College of Liberal Arts (COLA)	General Education: Science, Technology, and Society Economics Communications Foreign Language Writing	Degree Programs: Communications Criminal Justice Economics Psychology Public Policy Science, Technology, and Public Policy (MS) School Psychology (MS)

Compared to last year when we completed this report, every college has made significant advances in refining outcomes assessment measures, collecting data and applying it to improving instruction.

### **Charge Question Part 3 Resources and Technological Support**

*As an Institute are we supplying the appropriate resources and technological support for these assessment efforts?*

Since the implementation of learning outcomes assessment, all colleges continue to complete their assessment efforts by re-allocating existing college resources. This reallocation is in areas of budget, technical resources, and faculty and administrative time. While the startup phase has been accommodated by reallocation of existing college resources, to sustain the process over time all members of the Academic Outcomes Assessment Task Force agree that incremental resources are needed.

Furthermore, the Academic Outcomes Assessment Task Force recommends following the lead of other colleges and universities providing institutional leadership in the form of an office of assessment with assigned personnel responsible for managing and supporting the assessment process. Administrative mechanisms are needed to insure ongoing college-level and institute-level assessment reports on an annual basis. Assessment requires faculty, staff, and technical resources. Systematic repositories need to be developed for storage and retrieval of ongoing documents and reports. Assessment is an ongoing process that requires regular monitoring and evaluation both at the Institute level and the program level.

Engaging and maintaining faculty involvement requires ongoing training at the college level for faculty and department chairs in order to remain current on the “best practices” in assessment as well as examine already existing assessment tools. Support needs

to be provided for gathering and analyzing data for assessment purposes at the college level to relieve the additional demands that have been placed on faculty and administrators already dealing with heavy teaching, scholarship and administrative responsibilities. In partnership with the faculty and the administrators in each college, an office of assessment is needed to realize the full potential of our assessment efforts to enhance student learning.

### **General Education**

There have been two parallel processes occurring at RIT related to General Education. As members of the Academic Outcomes Assessment Task Force, the College of Liberal Arts and the College of Science have been working on assessing the current general education requirements. At the same time, the Provost issued a directive establishing a new set of general education requirements focused on increasing flexibility and student choice while maintaining and increasing the quality of education provided by the program. As part of this revision, the Provost established a faculty committee from COLA, COS and NTID in the 2005-2006 academic year to review and revise the General Education Student Learning Outcomes and Assessment for the University. This committee drafted a white paper in October 2006 for discussion by the faculty at the University. Based on the feedback from the faculty, a revised copy is anticipated before the end of spring 2007. (See Appendix B for the first draft of *General Education: A White Paper for the RIT Community*.)

### Next Steps

When the general education learning outcomes have become finalized, resources and expertise will be needed to incorporate them in COLA and COS courses, and in courses in the other colleges of RIT that have been approved as General Education electives.

To continue this process, the logical first step will be to conduct an analysis of existing courses to determine where the learning outcomes identified in the white paper are currently being taught and to identify any critical gaps. Additional expertise and additional resources will also be needed to design student outcomes assessment plans for each of the General Education learning outcomes and a system established to collect and report data on a periodic basis.

Currently, general education at RIT is the primary responsibility of two colleges – the College of Liberal Arts and the College of Science. Each college provided an update of the general education assessment efforts.

#### College of Science: General Education Curriculum Update

The School of Mathematical Sciences continues to have success in its calculus course sequences, which were described in last year's report. The Department of Physics is now completely converted to the Team Physics format in all University and College Physics courses, and more faculty are gaining experience with this new pedagogy of integrated lecture and laboratory class sessions. The results continue to show the improved student success that was reported last year.

A major curriculum revision initiative in the Department of Chemistry was completed and the phase-in is occurring during this academic year. The General Chemistry course sequences that form the core of their general education offerings were extensively revised. Their stated goals included forming a smaller, more focused set of course offerings that would match the needs of the programs that require a chemistry sequence. These courses would also have well-defined learning outcomes that would make advising easier for those taking them as science electives. Part of the revision was aimed at better integration of the

lecture and laboratory components, and better integration between courses for those students transferring to programs with different chemistry requirements. Finally the goals included providing a stand-alone online learning sequence to support students who are out of sequence in their degree programs.

The culmination of this revision was the development of five general chemistry tracks. A three-stage phase-in plan will lead to full implementation in fall 2007. Already improvements have been seen. The DWF rate in College Chemistry 208 dropped from 34% to 12% in the first year. Continuing assessment is built in to gauge the success of the changes and allow for modifications based on experience with the new tracks.

#### College of Liberal Arts: General Education Curriculum Update

In the past year a number of changes have occurred with regard to the general education section. As indicated in the previous report, the new curriculum has been in operation for approximately one year. In the 2005-06 academic year, the provost appointed a committee to examine the goals of the general education curriculum from an Institutional perspective rather than solely from the perspectives of the College of Liberal Arts and the College of Science. To date the document that this committee produced has been widely discussed in the three colleges that were responsible for its authorship: viz., Liberal Arts, Science, and NTID. Additionally, there were discussions in the Faculty Senate. The final version of this document will incorporate the revisions recommend by the faculties of the three colleges as well as the other governance bodies. This revised version will, it is anticipated, become the guiding document for general education for the Institute and hence will become the criterion against which assessment of goals will be measured.

Nevertheless, in the past year there has been an effort to assess the impact of the existing general education curricula. These include the following:

1. An alumni survey directed to the general impact of the general education on the graduates
  2. Assessment of the Science, Technology, and Society (STS) curriculum.
  3. Assessment of the Economics curriculum.
  4. Assessment plan for the Communication curriculum.
  5. Assessment plan for the Foreign Language curriculum.
  6. Further refinement of the assessment of writing.
1. Alumni Survey

In 2005, graduates of the College of Liberal Arts degree programs were surveyed as to their current positions, the impact that both their professional education and the general education had on them with regard to their current positions, and the impact of faculty members on them. There were forty-two responses. The chronological range covered from 1978 to 2004. Most of the respondents had graduated within the last fifteen years. This survey was not available when the original report was written.

While the number of respondents is low and exclusively for graduates of the College of Liberal Arts, it is possible to see indications that the objectives of the general education were achieved, or at least perceived to have been achieved by these alumni. In response to the question “What Liberal Arts classes, professors and other experiences were important to you, or had a positive effect on you?” various individuals indicated that their humanities and social science courses contributed to writing skills, self-confidence, communication skills, critical thinking, and a broader view of the global issues.

## 2. Assessment of the STS Component of General Education

The faculty of the STS Program/General Education Core assessed their program by using the instrument of students’ course performance. The STS/Public Policy Department

collected previous year data on grades for core courses offered by the STS Program. These data are included in Appendix B of the department's report. As shown in that appendix, the students have performed well in their STS coursework, with an average of approximately 3.1. Because the course objectives are centered on COLA general education goals, to succeed in these classes is to succeed in achieving COLA goals. Therefore, the faculty believe the outcomes of this assessment point to success for their STS Program/Upper Level students.

### 3. Assessment of the Economics Component of General Education

The Economics Department engages in ongoing outcomes assessment of its core course, Principles of Microeconomics. In 2005-06 a committee comprised of department faculty constructed an assessment instrument for pre and post testing of learning outcomes. The instrument contained 10 multiple-choice questions and was administered in Principles of Microeconomics classes in the Spring Quarter 2005-06 and Fall Quarter 2006-07. The instrument was administered twice each quarter, once on the first day of classes before formal instruction had begun and again on the last day of classes after formal instruction had been completed. The scores measuring the percentage correct were aggregated and compared using a T-test for differences in means. The results of the statistical test indicated that the difference in means were statistically significant at the 1% level. Given that the means for the scores after formal instruction were higher than the scores prior to formal instruction, the department concluded that learning consistent with departmental learning objectives has occurred in the Principles of Microeconomics core course.

### 4. Assessment of the Communication Component of General Education

The Communication Department lists the following program outcomes for courses that are taught primarily for the general education portion of the curriculum.

- a. Understand and have practical experience in selected modes of human communication.
- b. Understand the role of several modes of communication in personal, academic and professional situations.
- c. Be able to apply appropriate principles of communication in academic, personal situations.

Assessment is based on in class observation, oral presentations, and presentation of students' research.

#### 5. Assessment plan for the Foreign Language Department

The Foreign Language Department is in agreement with and derives its goals from the ACTFL (American Council on the Teaching of Foreign Languages) document on the teaching of foreign languages. This document defines content standards – what students should know and be able to do – in foreign language education in the U. S. The document has become the national standard for foreign language education and centers on five goals, usually referred to as the five C's: Communication, Cultures, Connections, Comparisons, and Communities.

The Department indicates that its statement of philosophy is that “language and communication are at the heart of the human experience. We must educate students who are linguistically and culturally equipped to communicate successfully in a foreign language in a pluralistic society at home and abroad.”

#### 6. Refinement of the Assessment of Writing

The English Department – formerly the Literature Department – has revised their assessment matrix. The department proposes to use a portfolio assessment method in which a group of papers are collected from several students across several courses sections throughout a period of two or three years. This system will give a more accurate evaluation



of course and student performance. This assessment method is a large undertaking, requiring archival preparation for storage of student work, administrative facilitation of rubric preparation and rater norming, the work of reading student work, and the compilation of data analysis into a final report.

The program outcomes are list as the following:

Expand student's proficiency in written, oral, and/or nonverbal forms of communication.

Ability to use a variety of sources including professional journals appropriate to researching a problem, topic, or issue.

Evaluate or use aesthetic forms of expression to present ideas.

Expose students to diverse social, historical, and cultural texts.

Implementation of this assessment proposal will necessitate the training of a number of faculty members and will require archiving student papers on-line.

### **Summary and Recommendations**

Since the last report in May 2006 every college has made significant progress in embedding outcomes assessment in its regular program development and review processes. Outcomes assessment requires continuous learning and there is much activity occurring in refining outcome measures and developing systems of data collection and analysis. Progress has been made and results of outcomes assessment have been applied to improving instruction. The themes and challenges that we reported last year remain.

Institute level themes and challenges:

- Continuing to embed assessment into institutional systems and processes and decision making
- Facilitating and supporting collaboration to find common solutions
- Addressing resource issues

College/program level themes and challenges

- Collecting, analyzing, managing, and maintaining data

- Understanding and balancing the workloads of those doing assessment
- Refining assessment plans and techniques as we learn more about assessment
- Training faculty in assessment methodologies at the beginning and more advanced levels
- Coordinating assessment requirements across multiple accrediting bodies

The major recommendation of the Academic Outcomes Assessment Task Force is that incremental resources are needed and an office of assessment should be established to capitalize on the work that has been done to date.

## **Appendix A College Executive Summaries**

*College of Imaging Arts and Sciences (CIAS)*  
**Middle States Outcomes Assessment Status Report**  
**January 15, 2007**

**Assessment, evaluation, planning, and projections**

**Assessment**

The National Association of Schools of Art and Design (NASAD) completed a comprehensive examination of degree programs in the College of Imaging Arts and Sciences and found that all undergraduate and graduate programs they examined met or exceeded NASAD accreditation standards.

**Evaluation**

The College of Imaging Arts and Sciences as all colleges of RIT participates in academic program review on a regular basis. The academic program review mandated by the university is in addition to accreditation processes such as the Middle States Association Commission on Higher Education and NASAD. While comprehensive program reviews occur for academic programs at RIT at least every four years, an annual review occurs during the budget planning process. Continuous assessment drives the planning process. As part of the budget presentation each dean must make to the President and Vice Presidents every January, an assessment of the viability of specific programs must be made. The President and Vice Presidents are particularly interested in the performance of new programs in which recent investments of faculty and other resources have been made. All proposed new programs must present a financial model that predicts the ratio of revenue to expense over the first five years of operation. Failure to match such predictions can have an impact on the dean's ability to gain additional resources from the university. New programs in the College

of Imaging Arts & Sciences such as New Media Design and Imaging have exceeded predictions for numbers of students and revenue generation.

Because there is such close scrutiny of the operations of each college, the self-study of the BFA and MFA programs at RIT has revealed no surprises. While we celebrate our strengths, we are well aware of our weaknesses. We have strong, highly qualified faculty in every area. In most areas, there is an acceptable balance of new and experienced faculty. We have state-of-the-art technology in most areas, particularly computer technology. While we have an appropriate amount of space for most programs, it is not all configured appropriately. Through the annual capital budget process, we are working to improve the space we have. Where we have needs for significant additional or renovated space, we are working through the capital campaign to raise the funds for such changes. We work closely with industry partners to ensure that our equipment is up-to-date. Still, not every studio has the best furniture available. Nor do we have the latest version of every relevant software package on every computer in the college. These are things the Leadership Team, i.e., the dean, director of operations, and administrative chairs, work to rectify over time with the capital budget we have been granted from the university.

The ultimate measure of the success of our programs is the success of our students. We are not able to measure ourselves directly against other art and design programs, but we can assess certain dimensions relative to other programs. The chart below indicates where we believe we would stand relative to the art and design programs listed in U.S. News and World Report (2003) on a combination of freshman retention, graduation rate, and acceptance rate, all weighted equally.

School	Freshman Retention Rate	Graduation Rate	Acceptance Rate
Rhode Island School of Design	93%	92%	34%
RIT	88%	63%	56%
CA Institute of the Arts	87%	52%	36%
MD Institute College of Art	83%	63%	46%
MA College of Art	87%	47%	46%
Ringling School of Art & Design	80%	60%	44%
Pratt Institute	86%	49%	46%
Art Center College of Design	85%	61%	65%
Corcoran College of Art & Design	86%	43%	62%
Kansas City Art Institute	75%	60%	79%
Maine College of Art	66%	60%	90%

Obviously, these are not the only measures of success. In particular, we want to know that our graduates have been successful once they've left us. The efforts within each of our programs to reach out to alumni and their response leads us to believe that most have found fulfilling careers, i.e., the successful pursuit of consecutive progressive achievement in the visual arts.

### **Planning**

The annual planning process in the College of Imaging Arts & Sciences begins at the university level with the budget process and at the individual level with annual faculty plans of work. The two processes meet at the School and/or Department level within the college. Administrative chairs have the responsibility of matching the budget planning process with faculty plans of work. Resources need to be identified within the existing college budget or

as special requests to the university to fund activities identified by faculty in their plans of work that are consistent with School and/or program goals.

### **Projections**

With nearly 2,000 full time equivalent BFA and MFA students in the College of Imaging Arts & Sciences, we have no plans to increase our student body. While some of our more selective programs, such as Film and Animation and New Media Design and Imaging, could easily grow without affecting quality, we are concerned that the nature of these programs would be very different if they were larger and we are not convinced that employment opportunities are unlimited in either case. Photography and Design, our largest programs, have capped enrollment for several years now. While we could accommodate a slight increase in programs in the School of Art, we are more interested in quality than quantity. With the exception of some under-enrolled Master of Science in Teaching programs, we have no plans to discontinue any programs. All of our programs evolve as the fields they represent change. The biggest issue facing the College of Imaging Arts & Sciences is how to increase revenue without enrolling incremental students. We are highly tuition dependent, and there will be a limit to how much tuition can be increased without concurrent increases in financial aid for those who qualify. The challenge that faces us is to increase the endowment both through the establishment of endowed professorships and endowed scholarships. We are actively seeking support for an endowed professorship in the School of Design and another in the School of Photographic Arts & Sciences. The School of Film and Animation is working closely with alumni and industry partners to find support for the expansion of the school's facilities. The School for American Crafts is actively pursuing a potential donor to fund the renovation of the "Craft Village" buildings. All of these things

are being done at a time when economic realities are facing many of our alumni and other potential donors. After 100 years of education in art, design, and photography at RIT, we have confidence in the future and patience with the present.

### **The Self-Study Process**

The self-study process has been ongoing for the past two years. Every faculty member has been asked to update course outlines and syllabi to ensure that stated objectives and topics clearly address intended outcomes. Administrative Chairs and Program Chairs have compiled course outlines to ensure that individual courses are consistent with the goals of the degree programs, and they have gathered examples of student work that demonstrate the extent to which these goals have been realized. The writing of the self-study document has been a joint effort involving discussions with faculty at the program level and draft documents from the following faculty and staff members:

Don Arday, Chair of the School of Art

Julia Galloway, Chair of the School for American Crafts

Patti Lachance, Chair of the School of Design

Joyce Hertzson, Chair of the Foundations Department

Howard Lester, Chair of the School of Film and Animation

Bill DuBois, Chair of the School of Photographic Arts

John Cox, Chair of the Art & Computer Design Department at NTID

Zerbe Sodervick, Director of Extended Studies

Greg Barnett, Director of Operations

Deb Kingsbury, Assistant Dean

Terry Merritt, Scheduling Officer



Sue Clark, Academic Coordinator

Janice Heard, Academic Coordinator

Kristi, Kress, Academic Coordinator

Kari Horowicz, Art and Photography Librarian

For each program indicate the status of outcomes assessment implementation in the table below

C = Complete

IP = In progress

M = Missing

Program Summary Table College of Imaging Arts and Sciences

Program Name	Program Outcomes Defined	Methods Assessment Identified	Course Outlines have learning outcomes	Data Collection	Report shows data, decisions, results analysis	Assessment plan fully implemented with continuous review	Comments
<b>SCHOOL FOR AMERICAN CRAFTS</b>							
BFA Ceramics	C	C	C	C	C	C	Update added to Program Assessment
MFA Ceramics	C	C	C	C	C	C	Update added to Program Assessment
BFA Glass	C	C	C	C	C	C	Update added to Program Assessment
MFA Glass	C	C	C	C	C	C	Update added to Program Assessment
BFA Metals	C	C	C	C	C	C	Update added to Program Assessment
MFA Metals	C	C	C	C	C	C	Update added to Program Assessment
BFA Wood	C	C	C	C	C	C	Update added to Program Assessment
MFA Wood	C	C	C	C	C	C	Update added to Program Assessment
AOS Wood (Associate of Occupational Studies)	C	C	C	C	C	C	Update added to Program Assessment
<b>SCHOOL OF ART</b>							
AAS Fine Arts Studio	C	C	C	C	C	C	Update added to Program Assessment
BFA Fine Arts Studio	C	C	C	C	C	C	Update added to Program Assessment
MFA Fine Arts Studio	C	C	C	C	C	C	Update added to Program Assessment
MST Fine Arts Studio	C	C	C	C	C	C	Update added to Program Assessment
AAS Illustration	C	C	C	C	C	C	Update added to Program Assessment
BFA Illustration	C	C	C	C	C	C	Update added to Program Assessment
BFA Medical Illustration	C	C	C	C	C	C	Update added to Program Assessment
MFA Medical Illustration	C	C	C	C	C	C	Update added to Program Assessment
MST Art Education	C	C	C	C	C	C	Update added to Program Assessment
<b>NTID (National Technical Institute for the Deaf)</b>							
AOS Computer Design	C	C	C	C	C	C	Update added to Program Assessment
AAS Computer Design	C	C	C	C	C	C	Update added to Program Assessment

<b>Program Name</b>	<b>Program Outcomes Defined</b>	<b>Methods Assessment Identified</b>	<b>Course Outlines have learning outcomes</b>	<b>Data Collection</b>	<b>Report shows data, decisions, results analysis</b>	<b>Assessment plan fully implemented with continuous review</b>	<b>Comments</b>
<b>SCHOOL OF DESIGN</b>							
BFA Graphic Design	C	C	C	C	C	C	Update added to Program Assessment
AAS Graphic Design	C	C	C	C	C	C	Update added to Program Assessment
BFA Industrial Design	C	C	C	C	C	C	
AAS Industrial Design	C	C	C	C	C	C	Update added to Program Assessment
BFA Interior Design	C	C	C	C	C	C	Update added to Program Assessment
AAS Interior Design	C	C	C	C	C	C	Update added to Program Assessment
BFA New Media Design and Imaging	C	C	C	C	C	C	
MFA Graphic Design	C	C	C	C	C	C	Update added to Program Assessment
MFA Industrial Design	C	C	C	C	C	C	Update added to Program Assessment
MFA Computer Graphics Design	C	C	C	C	C	C	Update added to Program Assessment
<b>SCHOOL OF FILM AND ANIMATION</b>							
BFA Film/Video/Animation	C	C	C	C	C	C	Update added to Program Assessment
MFA Imaging Arts - Film and Animation	C	C	C	C	C	C	Update added to Program Assessment
<b>SCHOOL OF PHOTOGRAPHIC ARTS AND SCIENCES</b>							
AAS Photographic Illustration	C	C	C	C	C	C	Update added to Program Assessment
BFA Photographic Illustration	C	C	C	C	C	C	Update added to Program Assessment
MFA Imaging Arts - Photography	C	C	C	C	C	C	Update added to Program Assessment
BS Biomedical Photographic Communication	C	C	C	C	C	C	
BS Imaging and Photographic Technology	C	C	C	C	C	C	
<b>SCHOOL OF PRINT MEDIA</b>							
BS Graphic Media	C	C	C	C	C	C	Update added to Program Assessment
BS New Media Publishing	C	C	C	C	C	C	Update added to Program Assessment
MS Print Media	C	C	C	C	C	C	Update added to Program Assessment

E. Philip Saunders College of Business (EPSCOB)  
**Middle States Outcomes Assessment Status Report**  
**February 9, 2007**

**Executive Summary**

**Introduction**

In response to the expectations of the Middle States Association of Colleges and Schools, Rochester Institute of Technology has a university wide Student Outcomes Assessment Committee, with representation of each college, coordinating a set of activities within each college. This report summarizes the current status of Outcomes Assessment activities within the E. Phillip Saunders College of Business (EPSCOB). In the 2006-2007 academic, the faculty committee responsible for Learning Outcomes Assessment was renamed the Learning Outcomes Assessment Committee. This report will use this terminology without regard to academic year.

The Executive Summary will

- Summarize the Academic Programs within EPSCOB
- Describe the roles and responsibilities for Outcomes Assessment within EPSCOB
- Summarize current status of Outcomes Assessment activities within EPSCOB
- Present an overview of the college's assessment plan, looking forward over the next three years
- Discuss issues and challenges within the college.

**EPSCOB Academic Programs**

The EPSCOB offers an undergraduate B.S. degree with various majors. All undergraduates take a Common Core of courses so the undergraduate B.S. is defined as a single program. Multiple graduate degrees are offered serving different constituent groups of

students, The Regular MBA, the Executive MBA and MS degrees in Finance and Management.

Several major changes have recently occurred in the graduate area. First, the Prague MBA (PMBA) has been discontinued, with the final students graduating at the end of the 2005-2006 academic year. The MS – International Business was transformed into the MS – Management with tracks in International Business and Technology Management. In addition, a new MS in Management of Innovation has been approved by the college and is in the final stages of university review.

During the 2006-2007 academic year, the EPSCOB is focusing on Outcomes Assessment activities in five academic programs:

Undergraduate BS  
Regular MBA<sup>1</sup> (MBA)  
Executive MBA (EMBA)  
MS – Finance  
MS – Management

### **EPSCOB Roles and Responsibilities for Learning Outcomes Assessment**

The EPSCOB Learning Outcomes Assessment Committee is charged to

- oversee the development of a process for administering and summarizing program level learning outcome assessments,
- produce an annual summary of resulting assessment information,
- Provide this summary to appropriate groups (discipline faculty, graduate and undergraduate curriculum committees) for the purpose of curriculum review and improvement.

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<sup>1</sup> Includes version of the MBA program registered to meet CPA licensure requirements. Students in the registered MBA accounting program must complete all regular MBA program requirements and additional coursework as specified by the NYS Department of Higher Education.

The university plan for Student Outcomes Assessment includes specific components for each college:

Revise course outlines with course level learning objectives.

Develop objectives and outcomes for each academic program.

Identify where outcomes are addressed.

Identify assessment methods.

Establish assessment method criteria, baseline, cohorts, and scheduling assessment.

Implement the assessment plan.

Within the EPSCOB, discipline faculty and faculty committees are responsible for items 1, 2, and 3, with the approval and coordination of the EPSCOB's graduate and undergraduate curriculum committees. The EPSCOB Learning Outcomes Assessment Committee is responsible for the other items, as they relate to the BS and MBA programs. The Learning Outcomes Assessment Committee must develop, implement, and report on learning outcomes assessments for the Program Learning Goals of these programs.

As they relate to the other items, discipline faculties are responsible for MS program learning outcome assessments, in coordination with the Learning Outcomes Assessment Committee. In all cases, individual faculty are responsible for assisting in administering assessments through embedded modules, or specific assessment instruments in the classes. In addition, a basic charge to each curriculum committee is to devote at least one meeting per year to a review of assessment information, making appropriate recommendations for curriculum changes.

## Background and Current Status

A major focus during the 2002-2004 timeframe was concurrence on Program Goals and mapping these goals into course learning objectives that are documented in the Master Course Syllabus for each course. The undergraduate curriculum committee, the graduate curriculum committee and the disciplines continue to work effectively to maintain the currency of master course syllabi and their learning objectives:

### Program Learning Objectives Mapped to Course Learning Objectives in Master Course Syllabi.(2006-2007 Academic Year)

Master Course Syllabi Status	Number	Per Cent		
Active Courses	<b>230</b>	100%		
MCS Submitted and Approved:	223	97%		
MCS Under Review:	9	4%		
MCS Missing	2	1%		
Other	<b>443</b>			
Inactive, not in current bulletin: 368	368			
Independent study, Co-op, Course numbers used for transfer credit	75			
<i>TOTAL</i>	<b>673</b>			
last updated February 8, 2007				

In the spring of 2004, the EPSCOB Learning Outcomes Assessment Committee utilized the ETS major field test in business to assess knowledge and understanding of basic functional areas by students in the BS, Regular MBA and Executive MBA program. Results from this assessment are discussed in detail later in this report.

Following a suspension of learning outcomes activities during the AACSB accreditation reviews and site visit during 2004-2005, in the 2005-2006 academic year, the Learning Outcomes Assessment Committee focused on reviewing the previous assessment activities and on development of a plan that addresses the requirements of the Middle States

review and the requirements in the AACSB standards. This plan fulfilled three specific objectives; it describes the current status and plans of the EPSCOB Outcomes Assessment for the Middle States Report completed during the 2005-2006 academic year, sets the stage for EPSCOB to re-engage assessment of program goals to “close the loop” during the 2006-2007 academic year and provides the framework for the college to implement ongoing, systematic assessment to support the AACSB accreditation review of the college in 2008. The plan encompasses all programs except for the MS-Management. A key planning assumption is that all Program Goals will be assessed on a 2-year or 3-year rotating basis. The plan identifies direct measures for each Program Goal, including use of the Major Field Tests from the Education Testing Service, use of an internally developed and delivered competency exam given to all graduates of the MS-Finance program, and the use of a number of course-embedded assessment measures. Details of the plan for each program are presented in later sections of this report.

The plan has been reviewed with both graduate and undergraduate curriculum committees. The undergraduate curriculum committee provided feedback regarding assessment strategies. The details of this feedback are being reviewed against the current plan.

In support of this plan, the EPSCOB Learning Outcomes Assessment Committee reviewed and then unanimously endorsing licensing the “Student Testing and Evaluation Portfolio System”, or STEPS. The STEPS system is a database application developed at the California State University at Chico for supporting the assessment process and in use by a number of AACSB accredited schools. A license agreement for STEPS was completed on February 1, 2007.



The Summary Status Table shown below identifies the status of the EPSCOB with respect to the remaining Middle States

Outcomes Assessment objectives:

**College of Business Outcomes Assessment Program Status (updated February 9, 2007)**

Program Name	Program Outcomes Defined	Assessment Methods Identified	Course Outlines have learning outcomes	Data Collection	Report shows data, decisions, results analysis	Assessment plan fully implemented with continuous review	Comments
Undergraduate BS	C	C	C	IP	IP	M	2004 ETS results will be evaluated versus 2007 results
Regular MBA	C	C	C	IP	IP	M	
EMBA	C	C	C	IP	IP	M	
MS – Finance	C	C	C	IP	M	M	
MS - Management	IP	M	IP	M	M	M	Newly revised program. Need to revalidate course levels goals following completion of Program Learning Goals

C = Complete  
 IP = in progress  
 M = Missing

## **Evidence of Continuous Improvement**

### *ETS Business Major Field Test as a Test of Knowledge*

In each of BS, MBA and EMBA program, the first learning goal concerns knowledge and understanding of the functional areas of business. In the spring of 2004, the EPSCOB Learning Outcomes Assessment Committee utilized the ETS Major Field Test in business to assess knowledge and understanding basic functional areas. The test consisted of 200 questions covering eight areas of knowledge. We developed internal comparisons of five groups of students in the eight subject areas covered by the test. The five groups of students are: Executive MBA, Regular MBA (2 year students), MBA (4+1 students), BS (regular 4 year) and BS (transfer students).

The EPSCOB Learning Outcomes Assessment Committee regarded the administration of the test as experimental and did not to set explicit expectations for each area of knowledge. In the MBA programs, the EMBA students performed at the highest level, followed by the MBA students in the 2 year program, with the MBA 4+1 students performing at the lowest level. For BS students, the regular 4 year students performed at a higher level than the BS transfer students. As a result of this test, the Graduate Curriculum Committee revised the MBA accounting course to expand coverage to managerial accounting in addition to financial accounting.

The EMBA students, who are not required to take the GMAT, had the highest overall score of any group. The Learning Outcomes Assessment Committee regards this as a validation of the alternative admissions criteria used for the EMBA program. We are concerned by the level of performance, particularly in accounting, of the BS Transfer

students. More information needs to be acquired to compare our Master Course syllabi and associated assessments with assessments used in transfer courses.

### *ETS Business Major Field Test as a Test of Analytical and Critical Thinking Skills*

The seventh BS learning goal specified that “Graduates should be able to conceptualize (i.e., analyze, synthesize, and evaluate) major business issues.” To determine the usefulness of the ETS business major field test for this purpose, the EPSCOB Learning Outcomes Assessment Committee reviewed and classified the 200 ETS questions using Bloom’s taxonomy. The Task Force classified most ETS questions as understanding or knowledge with a significant number classified as analysis or application. The EPSCOB Learning Outcomes Assessment Committee classified only a couple evaluation or synthesis and concluded the ETS business major field test is not an appropriate instrument to test critical thinking skills. Hence, the EPSCOB Learning Outcomes Assessment Committee will need to consider this item further.

### **Issues and Challenges**

The activities of the Learning Outcomes Assessment Committee are complicated by

- The startup overhead at the beginning of each academic year to reform the EPSCOB Learning Outcomes Assessment Committee
- The need to educate faculty on the nature and value of learning outcomes assessments.
- The need to convince faculty to participate in and fully support the integration of learning outcomes assessments

- The need to strategically move from the viewpoint that assessment is an end in itself to a viewpoint that assessment is a tool for ongoing improvement within the college.
- Managing the learning curve for STEPS while conducting assessments.

**Next Steps: Plans for 2006-2007**

During the 2006-2007 academic year the EPSCOB Learning Outcomes Assessment Committee plans to:

- Enhance EPSCOB faculty awareness and participation in Learning Outcomes Assessment by hosting a faculty workshop on assessment on March 23, 2007.
- Execute the following aspects of the EPSCOB plan:

Program	2006-2007 Objective
• BS Program	The EPSCOB Learning Outcomes Committee will: Assess the Program Learning Goal: Communications:: • Conduct Pilot of writing assessment using course-embedded assessment
• BS, MBA and EMBA Programs	The EPSCOB Learning Outcomes Committee will: • Assess the “Knowledge” Program Learning Goals by administering the ETS major field test in March 2007 • Compare 2007 results to 2004 results • Report results to the undergraduate and graduate curriculum committees
• MS in Management	The Management discipline will establish Program Learning Goals and have them approved by the Graduate Curriculum Committee
• MS Finance	The Finance discipline will: • Complete a rubric for assessment of the Valuation, Risk Management and Global Issues Program Goals • Administer Finance Exam • When sufficient data is available, evaluate achievement of learning goals • Develop recommendations, as appropriate
• STEPS	Approval of licensing agreement Student and Faculty data loading process established

Kate Gleason College of Engineering (KGCOE)  
**Middle States Outcomes Assessment Status Report**

**Introduction**

The Kate Gleason College of Engineering (KGCOE) enthusiastically embraces the Engineering Accreditation Commission's (EAC) criteria for accrediting engineering programs referred to as Engineering Criteria 2000 (EC2000). The EAC is one of four accreditation commissions that exist within the Accreditation Board for Engineering and Technology (ABET). The EAC of ABET was the first of the four commissions to adopt outcome based assessment and has made a gradual transition from the Conventional Criteria (old) to EC2000 (new). During the three years of 1998-99 through 2000-01 universities could have their engineering programs accredited under the old or new criteria (outcome based). Currently, and since 2001-02, all EAC accreditation visits are made under the outcome based EC2000 criteria. Under EAC Criteria 2000 each engineering program seeking accreditation or reaccreditation must have in place an assessment process and be able to demonstrate that their graduates have the abilities set forth in the program's defined outcomes.

RIT sought reaccreditation for all undergraduate engineering programs in the 2004-05 accreditation cycle and, hence, has implemented the outcome based Engineering Criteria 2000 guidelines. Notification by ABET was received in August of 2005 that all undergraduate engineering programs within the KGCOE had met the EC2000 standard.

**KGCOE Assessment Strategy**

The implementation strategy employed by KGCOE is a two stage linear process. Stage 1 (fully implemented) is focused on the undergraduate engineering programs (EC2000

Criteria). The process involves a six year cycle that culminates with a formal review by the EAC of the ABET. Stage 2 builds on the assessment knowledge acquired in stage 1 while extending the assessment process to all graduate engineering programs. The assessment process associated with stage 2 has been undergoing development since the fall of 2005.

### **KGCOE Organization of Assessment Processes and Plans**

The KGCOE has an active Assessment & Accreditation Committee that was assembled in the fall of 2001. The committee is charged with the overall responsibility for developing a viable and sustainable assessment process. They act as a sounding board on all related KGCOE assessment issues. In addition, although individual departments are free to modify the assessment instruments, they are responsible for developing and refining common assessment instruments. To date, they have developed and continue to refine the Employer Co-op Evaluation Form, Student Co-op Evaluation Form, Student Exit Survey Form, Employer Focus Interview Form, and the Alumni Survey Form. Implementation, data collection, analysis and continuous improvement are the responsibility of the individual departments.

### **Progress (Stage 1 – Undergraduate Programs)**

The ABET Self-Study Reports, prepared by each engineering department, along with the on campus ABET visit of 2004-05 demonstrated and provided evidence that KGCOE graduates possess the following program outcomes:

1. an ability to apply knowledge of mathematics, science, and engineering
2. an ability to design and conduct experiments, as well as to analyze and interpret data
3. an ability to design a system, component, or process to meet desired needs
4. an ability to function on multi-disciplinary teams
5. an ability to communicate effectively

6. the broad education necessary to understand the impact of engineering solutions in a global and societal context
7. a recognition of the need for, and an ability to engage in life-long learning
8. a knowledge of contemporary issues
9. an ability to use techniques, skills and modern engineering tools necessary for engineering practice.

Although implementation of stage one is complete across all undergraduate KGCOE programs the assessment process continues to evolve. Within the last six months, each undergraduate program has reviewed and updated their assessment process.

Improvements in the process have been directed at improving our ability to sustain the assessment process over the long term. For example, mechanical engineering has implemented a process that includes a triennial self study that compliments the ABET reviews. The electrical engineering department has changed their assessment process such that the program outcomes are reviewed on a staggered five year cycle.

### **Selected Examples of Program Improvements and Assessment Activities**

**Computer Engineering** - The assessment process, via senior exit interviews, led to improved laboratory facilities through the purchase of new pieces of equipment (e.g. network connection of oscilloscopes, logic analyzer, etc). In addition faculty/student interactions were strengthened through the scheduling of social activities.

**Electrical Engineering** – During the 2006-2007 academic year, the electrical engineering department has reviewed its first five program outcomes. They have confirmed that these outcomes remain strengths of the program.

**Industrial Engineering** - Based on student focus group data and review of the student exit surveys, it was determined that coverage of additional contemporary topics (e.g., lean

production and six-sigma topics) needed to be formally integrated into the curriculum. Basic six sigma topics have been integrated into the required Statistical Quality Control course and elective courses are now available that provide in-depth coverage of these topics. There has been a significant increase in student understanding of contemporary issues as measured by the student exit survey ratings (2004 and 2005 vs. 2006).

**Mechanical Engineering** – past alumni surveys verified that content related to globalization and ethics were important, and therefore these topics are now stressed in the multidisciplinary design course. Employer and student coop report comments previously indicated that ME students were not well-prepared for MATLAB use. Since restructuring the Problem Solving with Computers course, these comments appear to have diminished, or be almost non-existent in recent reports since the change.

### **Microelectronic Engineering**

The assessment process associated with the ABET review noted a concern relative to the Microelectronics Engineering program's ability to demonstrate that students possessed the ability to design a system, component, or process to meet desired needs within realistic constraints such as economic environmental, social, political, ethical, health and safety, manufacturability, and sustainability. The course "Capstone Senior Design Project I" has been elevated from 2 to 4 credits to allow additional time and attention to be focused on the design constraints.

### **Progress (Stage 2 – Graduate Programs)**

Stage 2 (Graduate Programs) was initiated in the fall of 2005 and is focused on the graduate programs in the College of Engineering. Stage 2 has progressed rapidly as it takes advantage of the assessment knowledge established in Stage 1. Within the last six months



each graduate program has reviewed their graduate assessment process and where appropriate refined the process. Data collection for the graduate programs is in progress. However, in most cases the assessment process has not matured to the level where we can document specific program improvements. However, pockets of improvements can be noted as follows.

**Industrial Engineering MEng degrees** – based on student and faculty feedback, all three MEng programs have incorporated a capstone course.

**Mechanical Engineering (ME)** – The DPM class continues to evolve based on student and faculty feedback. More than 50% of our MEng graduates will hold a leadership position (e.g. project manager or lead engineer).

### **Recommendations**

- The assessment efforts within the KGCOE need to be sustained. KGCOE needs to continue to refine the assessment processes and work toward a sustainable model.
- The institute should invest incremental resources in the assessment process in order to work toward the goal of developing sustainable assessment systems at the college level.
- Accreditation bodies (Middle States, ABET, and others) need to coordinate their visits and reporting requirements in order to minimize redundant efforts.

For each program indicate the status of outcomes assessment implementation in the table below							
C = Complete		P = In progress		M = Missing			
Program Summary Table <Kate Gleason College of Engineering >							
Program Name	Program Outcomes Defined	Methods Assessment Identified	Course Outlines have learning outcomes	Data Collection	Report shows decisions & results	Assessment plan fully implemented with continuous review	Comments (Recent Progress - 2006) See Department Executive Summary for Details
<b>Undergraduate</b>							
Computer Engineering (BS)	C	C	C	C	C	C	
Electrical Engineering (BS)	C	C	C	C	C	C	
Industrial Engineering (BS)	C	C	C	C	C	C	Curriculum Changes, Advising System, Sustainable Assessment Plan
Mechanical Engineering (BS)	C	C	C	C	C	C	Curriculum Changes, New Options, Sustainable Assessment Plan
Microelectronic Engineering (BS)	C	C	C	C	C	C	
<b>Graduate</b>							
Computer Engineering (MS)	C	C	C	IP	IP	IP	
Electrical Engineering (MS)	C	C	C	IP	IP	IP	
Industrial Engineering (MS)	C	C	C	IP	IP	IP	Initial Data Collection
Industrial Engineering (ME Degrees)							
Engineering Management	C	C	C	IP	IP	IP	Initial Data Collection, Capstone Course Implemented
Industrial Engineering	C	C	C	IP	IP	IP	Initial Data Collection, Capstone Course Implemented
System Engineering	C	C	C	IP	IP	IP	Initial Data Collection, Capstone Course Implemented
Mechanical Engineering (MS)	C	C	C	IP	IP	IP	Initial Data Collection
Mechanical Engineering (ME)	C	C	C	IP	IP	IP	Initial Data Collection
Microelectronic Engineering (MS)	C	C	C	IP	IP	IP	
Microelectronic Manufacturing Engr. (ME)	C	C	C	IP	IP	IP	
Applied Statistics (MS)	C	C	IP	IP	IP	IP	
Manufacturing Leadership	C	C	C	IP	IP	IP	Assessment Plan Finalized, Initial Data

(MS)							Collection, Some Preliminary Analysis
Product Development (MS)	C	C	C	IP	IP	IP	Assessment Plan Finalized, Initial Data Collection, Some Preliminary Analysis
Microsystems Engineering (PhD)	C	C	C	IP	IP	IP	

College of Science (COS)  
**Middle States Outcomes Assessment Status Report**  
**February 22, 2007**

**Overview**

The College of Science has 14 BS degree programs, 8 MS degree programs, and one PhD program delivered and administered by six academic departments. Since last year there has been an administrative reorganization of the College into the School of Mathematical Sciences, the School of Biological Sciences, the Center for Imaging Science, and the departments of Chemistry and Physics. The program assessment, however, is still carried out by individual departments. This report summarizes the first full round of program assessment. Last year the programs developed their assessment plans and began gathering data. This year the reports include those data, their analysis, and future steps.

**Summary of Results and Concerns**

This first year of actual data collection and analysis shows has allowed the programs to establish baselines for future comparison. As metrics are refined and more data are gathered, trends can be identified. The details for each program are in their individual reports. We note that the reports, while representing fine efforts in the first round of program assessment, were still done entirely as added tasks with no added resources. Last year we pointed out that faculty need the institute to recognize that an institute-level office must be established with the sole responsibility of providing coordination, training, and continuing support for the assessment process on an annual basis. Second, we need tangible resources at the college level to support data collection, storage, and dissemination. There is concern that without support the process will become so burdensome that it will lose its effectiveness. It

will not be given the priority or care that it deserves by faculty if it is not valued in their plans of work and supported with appropriate resources.

### **Challenges and Strengths**

The task of revision of all existing course outlines to include learning outcomes and assessment is nearly complete. As noted last year, faculty who sit on department curriculum committees are facile at incorporating learning outcomes and assessment, but many of the faculty are still learning how to do this well. With new faculty coming on board each year, it is clearly an ongoing project. This fact points again to the need for training about assessment.

The continuing challenges of formalizing and documenting what we do for program and course assessment can be met, given the support and resources commensurate with the task and the realization that it is a process that is in continual need of renewal and revision.

The following tables summarize the status of assessment efforts in the college.

<b>BS Programs</b>	<b>2007 Report Status*</b>
Biology	P
Biotechnology	P
Bioinformatics	P
Environmental Science	C
Chemistry	C
Polymer Chemistry	C
Biochemistry	C
Applied Mathematics	C
Computational Mathematics	C
Applied Statistics	C
Physics	C
Diagnostic Medical Sonography	C
Physician Assistant	C
Imaging Science	P

<b>MS Programs</b>	
Bioinformatics	P
Environmental Science	C
Chemistry	P
Industrial and Applied Mathematics	C
Clinical Chemistry	C
Imaging Science	P
Color Science	P
Materials Science and Engineering	P
<b>Ph D Program</b>	
Imaging Science	P

\*Report Status: C = completed P = pending

#### Status of Revisions of Courses to New Outline Format

#### College of Science Assessment Information

#### Course Outlines with Learning Outcomes

#### Summary by Department

<i>Department</i>	<i>Revised to New Format</i>	<i>Total Active Courses</i>	<i>% Completed</i>
Biological Sciences	51	81	63
Chemistry	72	74	97
Mathematics and Statistics	125	125	100
Physics	65	65	100
Medical Sciences	57	57	100
Imaging Science	40	40	100
<b>Overall</b>	<b>410</b>	<b>442</b>	<b>93%</b>

National Technical Institute for the Deaf (NTID)  
**Middle States Outcomes Assessment Status Report**  
**February 22, 2007**

*Executive Summary*

Student Outcomes Assessment continues to be a priority for our college. This report summarizes the results of data collected and applied to curricular, instructional, and academic support revision in Winter Quarter, AY 2005-2006, Spring Quarter, AY 2005-2006 and Fall Quarter, AY 2006-2007. We continue to improve our assessment plans and procedures with the goal of having a positive impact on curriculum design, instruction, academic support and, most importantly, student learning. The goals and process of incorporating student learning outcomes assessment in course and program design is embedded in the culture and procedures of the college. The greatest impact from our efforts to date has been to refine instructional strategies and content at the course level. These achievements are modest in scope and we continue to learn how to improve defining the critical learning outcomes and how to measure them. We have found that the major drivers of change at the program level are advancements in the technical fields; the strategic plans of the college and the university regarding the degree portfolio; changes in the general education curriculum; and changes in the interests and entrance skills of the student population.

**Progress in Executing Student Outcomes Assessment Plans**

College

The Associate Dean, the Curriculum Resource Associate (CRA), Department Chairs, and Program Coordinators in the departments continue to provide leadership for student outcomes assessment at the college and department levels. This year the Associate Dean and CRA updated the information on the website, added a revised Student Outcomes Assessment

Plan template, and worked with the web master to create an archival process for the Program Outcomes Assessment Plans and Reports. Current and past reports, as well as resource information, can be found on the college's VP/Dean website: <http://www.ntid.rit.edu/VPandDean/soa/pages/welcome.html>. The CRA and Department Chairs continued to work with the IT staff to improve the centralized collection and reporting of outcomes assessment data. The centralized database remains problematic and the question is whether it is more efficient to maintain data at the program level in the departments.

### Courses

To align the course outlines with the philosophy and goals of Student Outcomes Assessment, course outlines were reformatted to include student learning outcomes and associated assessment methods. As part of this process, we discontinued 149 courses from the course inventory which were no longer being offered and submitted paperwork for an additional 13 courses to be discontinued

All new and modified course outlines are now required by the curriculum review process to include student learning outcomes and assessment methods. All new and modified courses submitted in the 2006-2007 academic year included appropriate outcomes and assessment methods.

### Program Plans

Ongoing programs collected, reported and applied data to instructional improvement. Programs that were under revision suspended data collection and included reviewing and revising the outcomes assessment plan as part of the curriculum revision process. Finally, several new programs and major modifications of programs were completed and these programs all included student outcomes assessment plans in the documentation of the new



curriculum that will be implemented. In the new program design, course level learning outcomes and program level outcomes were aligned. (See the program summary form and Question #1 for details on each program.)

### Data Collection and Use

Co-op data provided assessment of student performance on the job. These data are reported for the whole college because there are not sufficient data at the individual program level available from the new online co-op supervisor evaluation to enable any conclusion specific to a major. The job placement data are very high, at 95%; consequently, programs are monitoring this rate for changes. We continue to work on how to interpret and apply Alumni Satisfaction data. Between the time of graduation and the Alumni Survey, programs frequently change significantly. Consequently, we are often receiving feedback on a program we no longer offer. The current approach is to focus on overall alumni satisfaction with their education and look for areas of dissatisfaction.

### **Question #1: Do all academic programs have appropriate goals and assessment plans based on student learning outcomes?**

All academic programs, general education (arts and sciences) and academic support programs in the college have Outcomes Assessment Plans. Each plan identifies critical outcomes, performance benchmarks, assessment instruments and timelines. See the attached chart for a list of programs and a summary of the progress of each program in developing and implementing assessment plans.

Since the last report, two new program plans were added: AS in Business and AAS in Applied Mechanical Technology. Three programs completed major revisions including changes to the outcomes assessment plans and will begin data collection in AY 2007-2008:

Automation Technology, Applied Optical Technology and Computer Integrated Machining Technology. Four programs suspended all or part of data collection while they undergo revision of the curriculum: American Sign Language –English Interpretation, Digital Imaging and Publishing Technology, General Education: English Literacy, and Healthcare Billing and Coding. Three more programs progressed to the collection of pilot data: Applied Computer Technology, Computer Aided Drafting Technology, and General Education: Communication Studies. Three programs and one area of General Education collected a second round of data, but have not applied it yet: Accounting, First Year Experiences, Counseling, and General Education: Critical Thinking. Finally, six programs completed a first or second round of data collection and applied it to improving instruction or services: Administrative Support Technology, Art and Computer Design, Laboratory Science Technology, Masters of Science in Secondary Education, Student Life Team, and Speech and Audiology Services. This compares favorably to last year when seven programs had started to collect data, four had completed data collection and five had applied results to improving instruction, curriculum or recruitment.

**Question #2: Describe what evidence is used and how this evidence leads to continuous improvement of educational practices, advising, teaching and learning.**

Since the last reporting, six of nine programs collecting data applied their outcomes assessment data to improving instruction or services. Administrative Support Technology has begun to implement an electronic portfolio in response to concerns about grade inflation and to support students' ability to see the connection between the work in different classes. Art and Computer Design (ACD) placed greater emphasis on resume preparation and written course work in response to students' low performance in resume writing which affects

securing co-op placement and permanent employment. In addition, ACD in their merger with DIPT is revising the program to provide emphasis on pre-press production processes and techniques. Laboratory Science Technology responded to concerns about safety in the labs by enhancing instruction in lab safety. Future assessment will evaluate improvement in this area. MS in Secondary Education addressed the high failure rate of students on the teacher certification exam by adding objectives to courses related to certification criteria, changing instructional materials and enhancing instruction on the preparation of Individual Educational Plans.

Student Life Team (SLT) made programmatic changes based on their assessment results. SLT created timelines for follow-up and the development of improvement plans for both the departments and individual staff plans of work when Outcomes Assessment results were not satisfactory. Outcomes Assessment will be repeated following the implementation of the plans. Speech-Language and Audiology addressed students' lack of awareness of the availability of services based on assessment feedback by increasing the dissemination of information about services.

### **Strengths**

Student Outcomes Assessment is becoming more embedded in the way faculty and staff think about assessing curriculum, instruction and services, and is a required component of the curriculum review and approval process. This is a major accomplishment. There continues to be strong administrative support during the process. Most programs see the potential of assessment even though the follow through is difficult.

As noted last year, emphasis on embedded assessment has promoted tracking and pooling of results from assessments that were already occurring in some courses. This has

created a new way of looking at the value of Capstone experiences, portfolios, papers, presentations, tests and projects. That is, they are seen as a measure of the success of the program itself, not just of individual students.

### **Challenges**

The major challenge remains assisting the faculty and department chairs in understanding the intrinsic value of student outcomes assessment and providing the necessary technical and intellectual support that will enable departments to engage in the assessment process in an ongoing basis. This remains a challenge because the benefits of engaging in outcomes assessment have been quite modest to date and the implementation effort significant.

Discussion needs to continue on the connection between the student learning outcomes embedded in course outlines and the outcomes assessment plans developed at the program level. Departments need to utilize selected student learning outcomes collected in the process of teaching courses for the program level assessment. This should help streamline the process and produce more authentic and robust assessment results. At the same time, outcomes assessment needs to be viewed as a continuous process with the analysis connecting data from one year to the next. Finally, we need to continue discussing the relationship between assessing student learning at the course and program levels and the scholarship of teaching and learning. Assessment done well embedded in the instructional process has the potential to contribute simultaneously to improved learning for students and scholarship for faculty that can be included in tenure and promotion portfolios.

The major challenges remain selecting and writing student learning outcomes that really matter to student learning, embedding this assessment in the instructional process and designing efficient ways to maintain and analyze that data.

### **Plans for Spring 20064 - Fall 20071**

- Discuss frequency of data collection and reporting, move to regular reporting in June
- Discuss designing and embedding assessment in course instruction
- Discuss how often and how do you know it is time to change the outcomes you are collecting
- Provide a forum on Outcomes Assessment to discuss use of results with all chairs and provide guidance/support
- Work with faculty to follow through on the use of results and how to connect results from one year to the next
- Maintain annual reports on the Student Outcomes Assessment website

### **Future Plans**

It is clear that for Outcomes Assessment to continue, it must remain a priority supported by the college. To date, Outcomes Assessment in our college has yielded only a few examples of exciting, useful results that would intrinsically motivate faculty and department chairs to continue.

We need to:

- Refine the Learning Outcomes so that they are truly useful to the programs and the students.
- Simplify some of the plans so there is time and energy to implement on an ongoing basis.
- Discuss whether to continue to try to centralize data or to maintain and report data at the program level.

- Facilitate further discussion on how to analyze the data and use the data to make decisions about curriculum and instruction.
- Discuss the IT support that is needed.
- Advocate for full-time leadership at the University level for Outcomes Assessment

For each program indicate the status of outcomes assessment implementation in the table below  
 C = Complete                      IP = In progress                      M = Missing

**Program Summary Table  
 February 21, 2007  
 NTID**

<b>Program Name</b>	<b>Program Outcome s Defined</b>	<b>Methods Assessment Identified</b>	<b>Course Outlines have learning outcomes</b>	<b>Data Collection</b>	<b>Report shows data, decisions, results analysis</b>	<b>Assessment plan fully implemented with continuous review</b>	<b>Comments</b>
<b>ACADEMIC PROGRAMS</b>							
Accounting Technology	C	C	C	C	C	IP	Data collected on 22 additional students; Faculty discussing improvement strategies for items with low score
Administrative Support Technology	C	C	C	C	C	C	Additional data collected; review of 3-years of results led to decision to change from paper to electronic portfolio for assessment of business communications
ASL-English Interpretation	C	C	C	IP	IP	IP	Data collection has begun and results will be posted beginning June 2007
Applied Computer Technology	C	C	IP*	IP	IP	IP	Pilot data collection guided subsequent assessments; Criterion met for 1 out of 3 general technical skill areas; Additional N's needed before decisions based on results can be made
Applied Mechanical Technology	C	C	C	M	M	M	New program and assessment plan approved July 2006; Students enrollment will begin Spring 2006
Applied Optical Technology	C	IP	C	M	M	M	Modified program approved July 2006; No data collected yet
Art and Computer Design	C	C	C	C	C	C	Revised data analysis revealed lower results on three measures than previously reported; faculty discussing improvement techniques for resume preparation and pre-press production
Automation Technologies	C	IP	C	M	M	M	Modified program and assessment plan approved July 2006; No data collected yet

Business (AS Degree Program)	C	IP	C	IP	M	M	New program; Assessment plan approved; Data to be collected beginning when students are in their final quarter of the program
Computer Aided Drafting Technology	C	C	C	IP	M	M	Modified program and assessment plan approved July 2006; No data collected yet
Computer Integrated Machining Technology	C	IP	C	M	M	M	Modified program and assessment plan approved July 2006; No data collected yet
Digital Imaging and Publishing Technology	C	C	C	IP	M	M	Assessment plan currently being revised as part of new curriculum development efforts within the department
Healthcare Billing and Coding Technology	C	C	M	M	M	M	Program suspended AY2006-2007; no data collected
Laboratory Science Technology	C	C	C	C	IP	IP	Data collected on 4 graduating students; all met criterion on 3 of 4 technical measures; data collection to continue
MS/Secondary Education/Deaf & Hard of Hearing	C	C	C	C	C	C	Added IEP and classroom management seminars based on alumni and employer surveys
<b>GENERAL EDUCATION (Arts &amp; Sciences)</b>							
English Literacy	C	C	C	C	C	IP	Data entry problems resolved & corrected data reported for outcomes assessed in mathematics/science courses; Outcomes data have led to curriculum changes, e.g. grading policy, in Reading and Writing courses
Critical Thinking	C	C	C	C	C	C	Results led to poster at regional conference & workshop for NTID faculty to enhance awareness of critical thinking
Communication	C	C	C	IP	M	M	Instruction & assessment measures being developed, revised and/or piloted; Data collection begins AY 2007-8
<b>ACADEMIC SUPPORT</b>							
Counseling	C	C	N/A	C	IP	IP	Data collected for 2 quarters; results indicated need for revisions to data collection methods and/or Freshman Seminar instruction
First Year Experiences	C	C	C	C	IP	IP	Results led to increased benchmark on one measure; Discussion of other results planned



Speech-Language and Audiology	C	IP	N/A	C	IP	IP	Results led to changes in information dissemination; faculty discussing the meaning of other results
Student Life	C	C	N/A	C	IP	IP	Based on AY 2005-6 results these data were collected using revised methods and timelines; results used to enhance individual and program performance
* two courses							

B. Thomas Golisano College of Computing and Information Sciences (GCCIS)  
**Middle States Outcomes Assessment Status Report**

**Introduction**

Since the GCCIS report of February, 2006, several new degree programs have been approved in the college and the baccalaureate degrees in Information Technology and Applied Networking & Systems Administration have completed their first assessment cycle. Each degree program's assessment cycle status is included in the table at the end of this report; where possible there are projected timelines for additional steps in the assessment cycle.

**Recently Approved Programs**

The Baccalaureate (BS) degree in Game Design and Development, Master of Science (MS) degree in Networking and Systems Development, and MS in Software Engineering were recently approved by the State and the first enrollments in these programs will commence with fall of 2007. Program outcomes have been developed and proposed assessment plans completed for each degree.

The MS in Learning and Knowledge Management Systems (LKMS), MS in Game Design and Development, and the Doctor of Philosophy (PhD) in Computing and Information Sciences were approved within the last twelve months and have their first matriculated students this year. The LKMS degree started offering its first courses in the spring quarter of 2006, program outcomes have been completed, there is an approved assessment plan, and data collection is underway. The MS in Game Design and Development has program outcomes, a proposed assessment plan, and is working to refine a more detailed plan. The PhD in Computing and Information Sciences has a conceptual plan for assessment

and is currently refining program outcomes and a more detailed assessment process. The first significant data collection point concerning student performance is scheduled for summer of 2007 when the PhD students take their core competency exams.

### **Software Engineering**

In software engineering, several initiatives have been implemented in response to recommended adjustments to address student perceptions, need for additional assessment instruments, and additional focus on preparation of technical documents and the impact of software systems on society. The program outcomes were revised and implemented during the 2005-2006 academic year, and it was decided to collect data on all outcomes every year during the three-year assessment cycle to provide more thorough data for analysis.

Curriculum was revised and a new course added in the fall of 2006 to address detected problems.

### **Computer Science**

In the BS and MS in Computer Science, initial data analysis has indicated the need to revise some of the course outcomes and data gathering strategies. Efforts are underway to update course outcomes, revise employer reviews, and develop alumni surveys for both programs; additional assessment instruments are planned and under consideration for the graduate degree. Course materials are being revised to provide better data for program outcome two for the baccalaureate degree and a “Cyberethics” seminar developed to address program outcome twelve.

### **Information Technology**

One subordinate outcome from program outcomes 1, 2, 5, and 7 in the BS in Information Technology were targeted for review during the first assessment cycle. Results

were mixed indicating better than expected results for outcome 2 (designing a relational database), deficient performance for outcome 1 (programming effectively within a student's specialty area), and inadequate assessment instruments for outcomes 5 and 7 (evaluate usability of an application and effective oral presentations). A pilot tested rubric for outcome 7 has been developed and will be implemented spring 2007; and work is underway to revise the assessment strategy for outcome 5. Curriculum content and materials were revised to address the programming issues and subsequently evaluation revealed improvement in student performance to an adequate level.

The BS in Medical Informatics is currently focused on curricular redesign developing new courses and revising existing courses. Program outcomes have been completed and work on a detailed assessment plan is expected to start in the fall of 2007. Program outcomes have been completed for the MS in Software Development and Management; revision of the assessment plan is underway to address changes in curriculum content.

Due to the interdisciplinary nature of the BS in New Media Interactive Development and the different cultures of the participating partners, progress has been slower than expected. Revised timelines are included in the table at the end of this report.

### **Network Security & Systems Administration**

For each program outcome in the BS in Applied Networking & Systems Administration there is more than one course that measures achievement. A different mix of courses is used each cycle to assess program outcomes. At the end of the first analysis cycle, June 2007, results for outcomes 1, 2, 5, and 10 met or exceeded expectations while several others revealed inadequate assessment instruments and overly ambitious expectations; efforts are underway to refine outcome expectations and develop more appropriate assessment

techniques. A weakness in student achievement in programming within in their specialty area was also identified and curricular revision has been implemented to address the problem.

Over the summer, administrative responsibility for the MS in Computing Security and Information Assurance was assigned to the Network, Security, and Systems Administration Department. Refinement of the assessment plan and strategies are in progress with preliminary data collection commencing spring quarter; partial analysis and reporting will take place the end of this academic year.

### GCCIS Assessment Cycle Status & Timelines

Degree	Program Outcomes	Assessment plan	Schedule data collection	Data Collection	Analyses & recommendations	Implement recommendations
BS Applied Networking & Sys. Admin.	Done	Done	Done	Done	Done	In progress
BS Computer Science	Done	Done	Done	Done	Done	In progress
BS Game Design & Development	Done	Proposed plan completed				
BS Information Technology	Done	Done	Done	Done	Done	In progress
BS Medical Informatics	Done	Fall 2007				
BS New Media Interactive Development	Spring 2008	Spring 2008	Fall 2008	Winter & Spring 2008-2009	Summer 2009	Academic year 2009-2010
BS Software Engineering	Done	Done	Done	Done	Done	Done
MS Computer Science	Done	Done	Done	Done	Done	In progress
MS Computing Security & Info. Assurance	Done	Preliminary proposal	Spring 2007	2007-2008 academic year	Summer 2008	2008-2009 academic year
MS Game Design & Development	Done	Proposed plan completed	Spring 2007	Fall 2007	Winter 2007-2008	Spring 2008
MS Information Technology	Done	Spring 2008				
MS Learning & Knowledge Mgt. Systems	Done	Done	Done	In progress	Fall 2007	Winter & Spring 2007-2008
MS Networking & Sys. Admin.	Done	Proposed plan completed	Summer 2007	2007-2008 academic year	Summer 2008	2008-2009 academic year
MS Software Develop. & Mgt.	Done	In progress	Spring 2008	Spring & Summer 2008	Fall 2008	Winter & Spring 2008-2009
MS Software Engineering	Done	Proposed plan completed				
PhD Computing & Info. Sciences	In progress	In progress				

Note: Done in all columns of a row indicate completion of a full cycle and ongoing execution of the assessment cycle.

C = Complete	IP = In progress	M = Missing						
College Computing & Information Sciences Program Summary Table								
Program Name	Program Outcomes Defined	Methods Assessment Identified	Completed Assessment Plan	Course Outlines have learning outcomes	Data Collection	Report shows data, decisions, results, analysis	Assessment plan fully implemented with continuous review	Comments
BS Appl. Netwkg. & Sys. Adm.	C	C	C	95%	C	C	IP	
BS Computer Science	C	C	C	95%	C	C	IP	
BS Game Design & Development	C	IP	IP	100%				state approved 12/2006
BS Information Technology	C	C	C	100%	C	C	IP	
BS Medical Informatics	C	IP	IP	100%	M	M	M	new program 9/2005
BS New Media Interactive Development	M	M	M	100%	M	M	M	name change 12/2006
BS Software Engineering	C	C	C	100%	C	C	C	
MS Computer Science	C	C	C	90%	C	C	IP	
MS Computing Security & Info. Assurance	C	IP	IP	90%	M	M	M	new program 9/2005
MS Game Design & Development	C	IP	IP	100%	M	M	M	state approved 6/2006
MS Information Technology	C	IP	IP	90%	M	M	M	
MS Learning & Knowledge Mgt.	C	C	C	91%	IP	M	M	new program 9/2005
MS Networking & Sys. Administration	C	IP	IP	100%	M	M	M	state approved 6/2006
MS Software Development & Mgt.	C	IP	IP	90%	M	M	M	
MS Software Engineering	C	IP	IP	100%	M	M	M	state approved 10/2006
PhD Computing & Information Sciences	IP	IP	IP	100%	M	M	M	new program 9/2006

College of Applied Science and Technology (CAST)  
**Academic Outcomes Assessment Report**  
**March, 2007**

**Introduction**

This Executive Summary provides general information about the second round of CAST outcomes assessment from winter, 2005/2006 school year through fall, 2006/2007 school year. These assessments are intended to update the first round of assessment which occurred in November 2005. The next full CAST assessment reporting cycle is at the end 2007/2008 school year.

Complimenting this executive summary is a documentation notebook that contains the full report from each program. This notebook is available through the RIT Outcomes Assessment Committee or by contacting the CAST Associate Dean directly.

**CAST Facts**

Divided into 5 academic departments, the college has approximately 80 faculty, and 40 staff on campus. CAST is a diverse college that includes a variety of curricula that includes: ABET accredited engineering technology, multi-disciplinary studies, hospitality and service management, nutrition management (professionally accredited), health systems, environmental management, and safety technology. The curriculum portfolio includes master of science, bachelor of science, associate, diploma, and certificate (graduate and undergraduate) programs. The student population and program delivery types reflect this programmatic diversity. While many students pursue their studies in traditional, fulltime programs, many are also, part-time, international (on-campus, online and site-based), and online. CAST has embraced online learning and non-traditional delivery to meet the learning challenges and opportunities of these different groups. The college has strong relationships



with the program-related industries and these connections both inform and keep curricula current, and position CAST to partner in workforce learning initiatives nationally and internationally.

CAST also delivers courses at the American College of Management and Technology (ACMT) located in Dubrovnik, Croatia and the American University of Kosovo (AUK). The programs offered at these locations are the same as those offered on the RIT campus and adhere to the same program educational outcomes, course intended learning outcomes plans, data collection, reporting and analysis.

### **Enrollment**

The following summary details the winter 2006 CAST enrollment (headcount) with ACMT and AUK included. Full program detail is in Appendix A.

#### **RIT w/out AUK/ACMT**

**83.5%** Undergrad

**16.5%** Graduate

#### **CAST (w/ACMT and AUK):**

**25%** of RIT enrollment

**11.4%** Graduate; **88.6 %** - Undergraduate

**26%** of CAST is ACMT and AUK

**38%** of CAST (w/ACMT and AUK) is Engineering Technology

**36%** of CAST is programs other than Engineering Technology/ACMT/AUK

#### **CAST (w/out ACMT and AUK):**

**51.3%** of CAST is Engineering Technology

**48.7%** of CAST is programs other than Engineering Technology

**CAST total FTE = 2,550 (Graduate = 179; UG = 2,371)**

### **Academic Outcomes Assessment**

CAST is actively involved in outcomes assessment. As a college, CAST began to implement assessment with our ABET accredited engineering technology programs in 2001/2002 school year. These ABET accredited programs demonstrated full implementation

of assessment, received full ABET review including site visits in fall, 2004 and were granted re-accreditation by ABET in July 2005. Two programs, the Electrical Engineering Technology, and the Safety Technology program were each asked to submit a brief Interim Report to ABET in September, 2006. (Note: Visiting accrediting teams may note concerns, weaknesses, or deficiencies (most serious). An Interim Report indicates that the review team found an item that needs correction and requires a report showing the remedial action(s) taken by the institution. ) The interim reports were submitted and we anticipate the accrediting process to be complete and successful for these programs by July 2007.

### **CAST Assessment Timeline**

Following is the overall CAST plan for outcome assessment. CAST pursued an aggressive timeline for all the departments and programs.

<b>TASK</b>	<b>Start date or Due date</b>	<b>Status</b>
CAST outcomes assessment committee begins meetings	October 2001	done
CAST audits all programs/course sampling	October 2001	done
Department missions and visions reviewed	February 2002	done
College Mission reviewed	February 2002	done
Initial program outcomes assessment plans submitted to college that include course and program objectives, metrics, data collection methods, and analysis/results/action and review dates	March 2002	done
Begin implementing plans	April 2002	
Begin development of materials and	October 2001+	ongoing

tools– College level		
Associate Dean – departmental/faculty meetings	February 2002 +	ongoing
CAST Curriculum Committee – redefine submission requirements, course master outlines, and implement changes	April/May 2002	
Assessment for all programs and courses (ABET and Middle States) started	Summer 2003	Ongoing
Full implementation of outcomes assessment in all ABET departments	Fall 2003 and remainder of school year	done
Assessment progress report from all departments with learning improvement documentation	Summer 2004	done
Engineering Technology deadline to implement ABET requirements and ABET site visit	Fall, 2004	done
Refine assessment plan and address issues and continuous improvement	Fall 2004 and remainder of school year 2004/5	Ongoing
2 <sup>nd</sup> Assessment progress report from all ABET programs and 1 <sup>st</sup> reports from non- ABET programs containing learning improvement documentation	Fall, 2005	done
Full implementation of outcomes assessment - all non-ABET programs	Fall 2005	done
Continue implementing/refining outcomes assessment –all programs	School year 2005/2006	done
Faculty meetings to refine outcomes assessment process and practice	Fall 2006 +	Ongoing

Update 2006 Assessment reports from all departments/programs with learning improvement documentation	Fall/Winter 2006	Done
Middle States review and visit	March 2007 School year 2006/2007	In progress
Full outcomes assessment program reports due to Dean's office	yearly	Ongoing

**Discussion**

From 2005 to present, CAST has continued to align this ABET process with the MSCHE and implemented outcomes assessment. Non-ABET graduate and undergraduate degree programs have built on their first 2005 round of assessment by improving their assessment methodologies, refining the processes, and applying improvements to both the programs and their assessment methodology. It has continued to be a learning process for all the participants – faculty and administration. CAST holds a core philosophy that assessment must engage everyone and must be driven by the program and department faculty. Although the Associate Dean has responsibility for college outcomes assessment, assessment engages all the constituent groups.

Initiatives in this round have addressed issues such as data reporting and collection, simplifying approaches while maintaining substance and depth, increased coordination within departments across all their programs, and linking course and program outcomes evaluation more effectively.

This has not occurred without challenges. RIT budget cuts forced the college to make position re-allocations and the position of college Systems and Database Administrator in the

Dean's office was eliminated. This has forced us to begin to re-think some of our metrics, data collection and reporting. While this has not eliminated reports that collect data from institute resources, it has dealt a blow to data reporting that is college based. Our task for the upcoming year is to examine all college-based data gathering and reporting and determine what is effective and possible given existing resources, streamline our processes and still provide quality assessment results.

The issue of incremental resources, maintenance of systems, and storage of data is a continuing problem. As indicated in the 2006 report from CAST, the other RIT colleges, and the Institute Assessment Committee, outcomes assessment has been implemented mainly through reallocation of resources at the college level. This has not changed. The issue is addressed in more detail in the full Institute Assessment committee 2006/2007 report and continues to be problematic.

Outcomes assessment requires a strong infrastructure and appropriate use of technology. Some examples of outcomes assessment tools and practices CAST began or completed during the past 2 years in addition to the programmatic assessments are:

- CAST Curriculum Committee continued monitoring of course outline project to include intended learning objectives and assessment into all active courses. The college has @ 90% completion of this course outline project detailed in the 2006 report.
- The course outline project has also served as a vehicle to review and update our course portfolio. Courses no longer used have been discontinued; course numbers were changed for consistency across programs; master course outlines updated; redundant courses eliminated. Departments have reviewed all courses and are

discontinuing all courses that have not been or intend to be offered in a reasonable time. We have found that while there has been diligence with new course curriculum process, discontinuance has not been done for many years. This will ensure that course catalogs are accurate and reflect only current course offerings.

- The CAST server holds all official course master outlines. In summer 2007, we will begin implementation of a document management system to streamline curriculum development, submission, and review.
- Curriculum committee minutes/forms/policies are published on the new CAST intranet.
- The college student success database that is updated quarterly with student course and grade data is the system affected by the re-allocated position. The use and effectiveness of this labor intensive database needs to be reviewed. This grade-based report has been used as a leading indicator of emerging course issues. Its short term grade focus is one element of a comprehensive assessment plan and is used to identify trends and problems quickly for further analysis instead of waiting for yearly assessment analysis. Investigation of other approaches to this is underway.
- The web-based co-op employer reporting form developed with the Office of Co-operative Education and Placement has proved to be an important element in the assessment process. In this system, employers evaluate the co-op students using a questionnaire mapped to program outcomes. Co-op students also fill out a co-op report mapped in the same manner. This system is now fully accessible by the departments.

- We continue to adjust faculty teaching assignments so they may work on assessment initiatives
- Graduating student and alumni survey distribution and data collection moved to dean's office and that survey is now administered and reported for all programs on a regular basis.
- A balanced scorecard project aimed at service quality was begun by the Assistant Dean. This first focuses on the Dean's office services but will expand to include all services offered throughout the college.

### **Future Directions**

CAST has made a commitment to outcomes assessment through judicious re-allocation of college resources such as giving assessment projects priority in systems development, staff support assignments, and release time to faculty. Intangibles such as time spent in meetings and development cannot be calculated. There have been no incremental budget increases during this start-up phase. The continuing issues relate to collecting, archiving, and maintaining data, on-going training to faculty in best practices, improving assessment practices, new and continuing collaborations with institute units to refine RIT processes and procedures to support assessment practices, and further embedding assessment into the culture of the college

### **Program Assessment Summary**

CAST has 13 undergraduate programs and 10 graduate programs. The newest graduate program - Facilities Management approved in September, 2006 - is in the assessment planning and development stage. To date, ABET accredited programs have had three rounds of outcomes assessment reporting; non- ABET programs completed their

second update round with this 2007 report. All CAST programs complete another major assessment reporting cycle in 2008. Faculty are collecting data, analyzing, and implementing assessment-based continuous improvements on a regular basis – both quarterly and yearly.

The following table details the outcome assessment status of each CAST degree program. Brief executive summaries of each program are found in Appendix B. Full reports submitted by each program are in the separate documentation binder.



<b>CAST Outcomes Assessment Program Status</b>						
C=COMPLETE IP=IN PROGRESS M=MISSING * ABET Accredited	Program Outcomes Identified	Methods Assessment identified	Course Outlines have Learning Outcomes	Data Collection	Report shows data decisions, results, analysis	Comments
<b>Undergraduate</b>						
Civil ET*	C	C	100%	C	Yes	Third evaluation cycle - original/follow-up reporting
Electrical ET*	C	C	100%	C	Yes	Third evaluation cycle - original/follow-up reporting
Computer ET*	C	C	100%	C	Yes	Third evaluation cycle - original/follow-up reporting
Telecommunications ET*	C	C	100%	C	Yes	Third evaluation cycle - original/follow-up reporting
Electrical /Mechanical ET*	C	C	100%	C	Yes	Third evaluation cycle - original/follow-up reporting
Manufacturing ET*	C	C	100%	C	Yes	Third evaluation cycle - original/follow-up reporting
Mechanical ET*	C	C	100%	C	Yes	Two evaluation cycles - original/follow-up reporting
Safety Technology*	C	C	100%	C	Yes	Reviewed for ABET accrediting. Outcomes criteria mapped to ABET requirements
Packaging Science	IP	C	90%	IP	Yes	2nd assessment cycle, new

						chair is implementing programmatic changes, updating program outcomes, and refining assessment plan for next round.
Hospitality and Service Management	C	C	98%	C	Yes	2nd assessment cycle
Nutrition Management	C	C	100%	C	Yes	2nd assessment cycle Also, external accreditation
Environmental Management and Technology	C	C	100%	C	Yes	2nd assessment cycle
Applied Arts and Sciences	C	C	98%	C	Yes	2nd assessment cycle
<b>GRADUATE</b>						
Environmental Health and Safety Management	C	C	100%	C	Yes	2nd assessment cycle
Packaging Science	C	C	90%	C	Yes	2nd assessment cycle
Telecommunications Engineering Technology	C	C	100%	C	Yes	2nd assessment cycle
Hospitality-Tourism Management	C	C	100%	C	Yes	2nd assessment cycle
Service Management	C	C	100%	C	Yes	2nd assessment cycle
Human Resource Development	C	C	100%	C	Yes	2nd assessment cycle
Health Systems Administration	C	C	100%	C	Yes	2nd assessment cycle

Cross-Disciplinary Professional Studies	C	C	100%	C	Yes	2nd assessment cycle
Manufacturing and Mechanical Systems Integration	C	C	100%	C	Yes	2nd assessment cycle
Facilities Management	IP	IP	IP	IP	IP	New graduate program approved 9/2006. First assessment report will be in 2008 cycle

Appendix A - CAST Facts

<b>RIT &amp; CAST Facts</b>			
<b>as of 21 day report - Winter 20062</b>			
Note: data is based on headcount and includes FT, PT, Co-op, executive leader			
<b>RIT (Headcount)</b>			
<b>RIT Undergraduate</b>	12,249		<b>RIT w/out AUK/ACMT is</b>
<b>AUK</b>	387		<b>83.5% Undergrad</b>
<b>ACMT</b>	504		<b>16.5% Graduate</b>
<b>Subtotal (Undergrad)</b>		<b>13,140</b>	
<b>Graduate</b>	2,417		
<b>Subtotal (Graduate)</b>		<b>2,417</b>	
<b>RIT Total - All</b>		<b>15,557</b>	<b>CAST (w/ACMT and AUK) is:</b>
<b>RIT Total - All w/out ACMT/AUK</b>		<b>14,666</b>	<b>25% of RIT enrollment</b>
			<b>11.4% Graduate</b>
			<b>88.6 % - Undergraduate</b>
<b>CAST Headcount</b>			
<b>CAST w/out AUK/ACMT</b>		<b>2,501</b>	
<b>CAST w/AUK &amp; ACMT</b>		<b>3,392</b>	<b>26% of CAST is ACMT and AUK</b>
Undergraduate	2,115		
Graduate	386	(includes all Exec. leader)	<b>38% of CAST ( w/ACMT and AUK) is Engineering Technology</b>
AUK	387		
ACMT	504		<b>36% of CAST is programs other than Engineering Technology/ACMT/AUK</b>
<b>CAST Programs (Headcount)</b>			

Mechanical ET	440
Manufacturing ET	50
Electrical ET	150
Elect/Mech ET	156
Undeclared ET	28
Man/Mech Sys. Int. (G).	23
Civil ET	204
Telecomm. ET	36
Telecomm (G)	38
Computer ET	157
<b>Subtotal</b>	<b>1,282</b>

Packaging Science	199
Packaging Science (G)	14
Env. Mgmt and Tech.	32
Safety Technology	19
Env. Health and Safety (G)	50
CETEMS certificates	10
HSM	206
HSM Graduate	153
(Health/Service/HRD)	
CMS Applied Arts/Science	428
CMS Professional Studies (G)	108
<b>Subtotal</b>	<b>1219</b>

ACMT	504
AUK	387
<b>Subtotal</b>	<b>891</b>

**CAST (w/out ACMT and AUK) is:**

**51.3%** of CAST is Engineering Technology

**48.7%** of CAST is programs other than Engineering Technology

**CAST total FTE = 2,550** (Graduate = 179; UG = 2,371)

## **Appendix B - CAST Academic Program Summaries**

### ***Department of Electrical, Computer, Telecommunications Engineering Technology***

#### Undergraduate Programs

Telecommunications Engineering Technology; Electrical Engineering Technology;  
Computer Engineering Technology

The evaluation of the Program Outcomes (PO's) for the continuous improvement plans for the programs in the ECT ET department indicates that all three programs are performing well and meeting expectations with no glaring warning signs. The Intended Learning Outcome summaries and Course Success Rate data are included within this report.

There is one Intended Learning Outcome (ILO) assessment metric that falls outside of the prescribed limit of 3.0 in the EET program. This is ILO #6 for Program Outcome #4. This will be investigated at the curriculum committee level. The course success rate data indicates effectiveness in the vast majority of courses. The lowest success rate occurs (62%) in Technical Programming II (0618-232) which is a required course for both CpET and TET. Courses with a success rate less than 70% have been highlighted. These, will be investigated at the curriculum committee level. The complete data will be evaluated at the program level and shared with faculty by the appropriate Program Chair. Additionally, the curriculum committee for each program will review all of the ILO and course success rate data to determine opportunities for improvement. Each curriculum committee will develop an action plan to be delivered to the department chair no later than January 12, 2007. It is noted that courses that were taught only online do not have Program Outcome data. It is the

responsibility of the Program Chairs and the department chair to implement an online assessment prior to the beginning of the next academic year.

### **Graduate Program in Telecommunications Engineering Technology**

The MSTET program is now in its fifth year and the enrollment has been stable in the range of 30 – 35 students. The current enrollment is 31 students, 17 of which are full time. Nearly all of the full time students have been international students, mostly from India. There are some signs of growth in part-time and online enrollment, but no hard data at this time.

The quality of incoming students has been excellent. Currently enrolled students who took the GRE had an average score of 1240 (verbal + analytical).

A total of nine students have completed the program. Seven of these are known to be employed in the telecommunications industry in the US or their home country. The status of the other two is unknown, but one has applied for a PhD program. Another two students who are currently completing their capstone projects have accepted jobs at Cisco Systems.

A program leading to simultaneous award of a BS and MS degree in TET has been approved by the State of New York and one student is currently enrolled and scheduled to graduate in May 2007.

A new course, Advanced Concepts in Wireless Communication, was introduced on a trial basis in the spring quarter of 2006. The course was well received and will continue to be offered as an elective.

Metrics continue to show that student success rates are high in courses that support our Intended Program Outcomes (IPOs). Attachment A is a list of the IPOs for the MSTET program. Attachment B lists some of the course Intended Learning Outcomes (ILOs) that support these IPOs. Attachment C lists success rate metrics associated with the IPOs.

One area of concern is the time taken by students to complete their capstone project or thesis. Currently there are seven incomplete projects and theses with an average “age” of 3 academic quarters (based on quarter of first registration for project or thesis). In some cases this is due to the fact that students have the option to obtain co-op assignments once their course work is complete or nearly complete. These assignments are especially attractive to international students. Nevertheless, the TET faculty will be reviewing the project planning course and looking for ways to reduce the capstone interval.

### **Department of Hospitality and Service Management**

#### *Graduate Program in Human Resource Development*

In response to the industry and alumni feedback, incremental improvements have been made in terms of course content and elective offerings. The department is currently engaged in a comprehensive evaluation of the program with the following goals in mind:

- Ensure all course content and course offering are up-to-date (as reflected in best practice research and professional organization competencies for HRD practitioners)
- Communicate the *unique* attributes of our HRD degree to better differentiate our program from others offered locally, regionally, and nationally
- Ensure we are utilizing resources effectively and avoiding redundancies across programs
- Attract students from disciplines other than HR
- Improve enrollment and retention
- Revitalize the program by creating a vision and focus for faculty, students, and staff



The initial research has been completed and a plan for improving required courses is in process. Improvements to electives and to the structure for the degree will be submitted for review early next academic year.

The research stage involved examining secondary research sources, surveying current students and alumni, evaluating similar programs locally, regionally, and nationally, and gaining the industry and business perspectives from our current adjunct staff.

The research summary identified the following required competencies:

- Strategic contribution (manage culture, facilitate fast change, involved in strategic decisions making, create market-driven connectivity)
- Personal credibility (credible within HR and with business line managers, effective writing and verbal skills)
- HR delivery (focus on HR activities in four key areas: staffing, development, performance management, managing and measuring the impact of global HR practices)
- Business knowledge (keen understanding of how the firm creates wealth, how the firm is horizontally integrated, what the industry challenges are)
- Knowledge of HR technology (how to leverage technology for HR practices and use e-HR/Web-based channels to deliver value to customers)

Improvements to-date include:

- Revamping the Workforce Development course elective to better address the needs of the various audiences the course serves. The new course, Human Capital Strategies is being offered on-line in the U.S. and in an Executive Leader format overseas.

- Development of a program vision: We believe that skilled individuals, committed to excellence, can become catalysts for positive change in their organizations. We work closely with our students to help them apply principles of human performance management and employee development to drive business results. We are revolutionizing human resource practices, one student at a time.
- Revitalizing the Theories of Employee Development course with a title change to Strategic Employee Development and content modifications designed to avoid redundancies with other courses in the curriculum, provide a stronger global perspective, and better address workplace trends. The new course design was piloted in an online format in the Fall quarter and will be offered in a classroom format in the Spring quarter.
- Addition of a new elective, Facilitation Skills, to address key competencies for HR professionals including conflict mediation, formal presentations, facilitation decision making meetings, and conducting strategic planning sessions. The new elective will be offered in a classroom format Summer quarter.
- Identification of new adjunct resources whose skills and experiences are a better match for competencies our program will strive to build in our students. Future planned changes include:
  - Improved course evaluations, based on documented teaching competencies and best practices for graduate faculty
  - Adjunct faculty workshop, required for all new adjuncts, to provide support for the transition from practitioner to educator and strategies for assess student progress and performance

- Observation of all new faculty to monitor performance and ensure quality
- Curriculum redesign

### **Graduate Program – Service Management**

Courses are continuously updated with new content and materials depending on the reports received from industry partners, faculty and faculty research, other similar programs, the advisory board, and student inputs. Over the timeframe of the last several years, for example, a new core course was added in Workforce development, and an old research course was replaced with the Service Performance Metrics course.

In addition, based primarily on student input, the research/project process has been revised and streamlined. In the past, students relied on the foundations course to begin their research thesis/project requirement. Depending on when they took that course, their work to complete the thesis or project would have been started too early (not enough of a foundation in content) or too late, delaying the whole process beyond acceptable completion times. As a result, the research thesis/project process begins now with their first course and is a continuous work-in-progress through the whole of their program. All students are “shepherded” through the process. The new streamlined process often results in students completing the course work and projects simultaneously (most often international students). The completion rate for 2006 was dramatically raised as a result of this streamlining.

### **2007 & Beyond Initiatives**

- Continued program re-development
- Awaiting Center Development in the Dominican Republic to expand the program
- 2-4 EL site expansions
- Additional faculty and adjunct faculty development

- Streamlining EL program administration
- Dedicated personnel
- Streamlining administrative processes

### **Graduate Program in Health Systems Administration**

The Health System Administration program is now in its 11<sup>th</sup> year. As with any viable academic program changes and modifications continue to be made to allow the program to retain current and relevance in the highly competitive field of health systems education. This program is focused on allowing career professionals to further their careers through education, dialogue, and learning experiences. The highlights of changes and modifications made to the program to achieve this include:

#### *Refinement of curriculum*

- As indicated in the outcomes measures a core foundation in health care governance, finance, and evaluation has proven to be a solid requirement for all students in the program. After reviewing course outlines and related outcomes a new course focusing on evaluation of healthcare *Health care Accountability Strategies* has been developed and will be inserted into the core curriculum.
- The ability for students to select a concentration which most clearly matches their career goals and ambitions has been successful. Given the number of electives students have been able to complete a major and minor concentration which allows for maximum career leverage based on the educational components of the degree. Changes have been made to curriculum concentrations to assure recency and relevance in the health care profession.

- The outcome which planned for demonstrations of leadership and innovation in students has proven to be very successful in the program. The capstone project is taught by the Program chair allowing for first hand knowledge of the number of students who have been able to leverage their capstone project to further their career through promotion, recognition or securing a new leadership position.

## **Undergraduate program – Nutrition Management**

### **Current Status of Nutrition Management Program**

The Nutrition Management Program, housed in the Hospitality and Service Management Department, is an American Dietetic Association (ADA) Program known as a Didactic Program in Dietetics (DPD). The American Dietetic Association accredits all Dietetic Programs. Our program at Rochester Institute of Technology was granted Initial Accreditation as of November 18, 2005. An interim report must be submitted by July 1, 2007. The next review of the program will be 2010 which is the five year interval of the ten year accreditation period.

The program continues to assess learning outcomes using the attached *Assessment Plan – Learning Outcomes for DPD Students*. There have been no changes in the content of this document and evidence has been gathered as scheduled.

Recent progress towards Nutrition Management Program Outcomes (attached) is as follows:

- 100% of students accepted to an accredited supervised practice program – Spring, 2006
- Program completion rate appears consistent – data not yet available

- 100% of feedback from supervised practice (internship) directors verified that students were adequately prepared for supervised practice – Summer, 2006
- 100% of feedback from alumni who completed supervised practice verified that they were adequately prepared – Summer, 2007
- 100% of feedback from graduates who became RD's have maintained RD status – summer, 2006
- 100% of feedback from students who did not pursue RD status were engaged in professional development/continuing education activities – summer, 2006
- 100% of graduating students have successfully completed “Leadership in the Service Culture” course and three co-operative work experiences in food and nutrition – August, 2006
- 100% pass rate on the RD exam from January-June, 2006
- 100% placement of feedback from graduates indicated that they achieved employment related to major within 12 months of program completion – Summer, 2006

Total GPA program requirements for admission to upper level (junior/senior year) professional courses has been raised from 3.0-3.2 (Fall, 2006) to be more consistent with most ADA accredited supervised practice (internship) requirements. This is the only program change that has occurred.

Trends observed include the following:

- 1) largest freshman class enrollment in the program in recent years
- 2) more nutrition students seeking international experience (Croatia – 2 students, Peru – 1 student, Africa – 1 student)

Data collected can be accessed via program directors.

#### Undergraduate Program – Hospitality and Service Management

The HSM program is offered on the RIT campus and at the American College of Management and Technology in Dubrovnik, Croatia. The outcomes and assessment plan is the same for both locations.

HSM uses a variety of assessment methods and data collection processes. Results are analyzed quarterly and on an annual basis. Evaluation instruments include employer co-op reports, student evaluations of learning, and course based assessment tied to team projects, tests, and assignments. Using these types of assessments as well as feedback from faculty, alumni, students and industry partners, HSM went through a major curriculum revision in 2005 that took effect in the 2005/2006 school year.

The educational philosophy of the Hospitality and Service undergraduate program focuses on personal and professional development of students via a wide variety of learning experiences including lecture, laboratory, projects, case studies, industry-sponsored projects or activities, communication and leadership opportunities, integration with professional organizations, special events, team activities, site visits, and other experiential learning opportunities. Students can develop and demonstrate competencies and general professionalism in a variety of ways in all of the courses offered in Hospitality and Service Management, as well as through cooperative work experiences and participation in special events. The core competencies of the graduates of the Hospitality and Service Management Department, both at the RIT campus and at the Dubrovnik campus are listed in the attached table of program outcomes. The graduates will

- Function in a professional manner in a variety of business environments.

- Use innovative and creative approaches to problem-solving.
- Demonstrate leadership and managerial skills in a global service environment.
- Demonstrate extensive knowledge appropriate to the graduate's HSM concentration.

Specific measurable competencies that the graduates will demonstrate include:

- Effective oral, written and interpersonal communication skills with sensitivity to the needs of the audience, including effective listening skills
- Application of knowledge specific to their area of concentration
- Professional behaviors and dress in a business environment
- Effective functioning as a leader in team and intercultural environments
- Effective accounting and marketing skills
- Identification of problems, solutions, and sources of information
- The ability to apply technology to solve problems and assist in management
- Collection and organization of data to assist in decision-making
- Excellent customer service skills
- Techniques for motivating employees
- The ability to identify current and future trends impacting their industries

## **HSM at ACMT**

### **Recommendations**

In the completion of the outcome report for the Hospitality & Service Management Program at the American College of Management and Technology in Dubrovnik Croatia, we found several opportunities for improvement of our systems (Findings):

- Information in student and alumni databases do not include some statistics which would be helpful in tracking outcomes.



- Database information is not exportable in formats that are functional for review of statistics specific to outcome measurement.
- A small number of course outlines were found to be vague in the area of outcomes and competencies tied directly to assessment methods.
- Program assessment measures do not track outcomes outside of classroom or beyond graduation.

ACMT is in the process of upgrading and implementing a systematic approach to assuring that quality standards are met by tracking the pursuit of the educational outcomes developed at RIT from instructional design through classroom instruction and evaluation of student performance, and instructor performance to implementation in the workplace. Full details are found in the documentation notebook.

**Department of Mechanical and Manufacturing Engineering Technology/Packaging Science**

*Electrical/Mechanical Engineering Technology*

Attached is a summary of the evaluation of the E/MET program as detailed in our ABET continuous improvement process.

We have met with the following constituents:

Industrial Advisory Board – 3 Times, Including Telephone Conferencing

US Military Educational Advisors – Presentation and Booth

Electric Power Industry Group – Presentation (Not adopted)

EMET Faculty Curriculum Committee – At least quarterly.

A survey of alumni will be mailed in January 2007.

Outcomes from these meetings have included:

- The Industrial Advisory board has grown from 5 to 15 members.
- The website has been revised.
- Several changes have been made in courses which have addressed weaknesses in previous years. Included are electric circuits, MET Lab I, the addition of blended (online with a live meeting) sections, and many smaller changes.
- Significant changes are underway in the electrical courses offered to resident students.
- Significant changes are underway in the method of instruction in fluids, thermodynamics, and heat transfer. The content will change slightly.
- The method of delivery of labs for online student will change, also forcing the delivery of labs for resident students to change. This has not yet been approved by the curriculum committee or the industrial advisory board.
- The change in labs will help to address the need for an integrating experience.

### *Manufacturing Engineering Technology*

#### **Continuous Improvement Activities Completed in 2005-2006**

##### **Action Item:**

“Attempt to change curriculum (Liberal Arts Requirements) to mandate taking 0509-217 Ethics In the Information Age (with a direct outcome measure).

##### **Activity:**

New curriculum for 2005 requires and ‘Ethics Elective’ as part of the General Education requirements.

**Action Item:**

“Evaluate effectiveness of 1016-319 Data Analysis as taught by College of Science. Ask manufacturing curriculum committee to consider how/where to add a SQC software tool (in addition to Minitab) to the curriculum.”

**Activity:**

Data Analysis Lab is now a required part of the 2005 Mfg ET Curriculum. Effectiveness of the combination of this lab and class still must be evaluated.

**Action Item:**

“Review needs of employers relative to changing roles of manufacturing engineers.”

**Activity:**

This activity was undertaken and resulted in a paper presented at the 2005 ASEE Conference in Portland Oregon. This paper identifies changes to the Program Outcomes and Intended Learning Outcomes that will be implemented in the coming academic year.

**Action Item:**

“Questions will be written for the next Alumni and Employer Surveys that more directly assess PEO’s”

**Activity:**

This will need to be addressed prior to the release of the next series of surveys.

**Continuous Improvement Activities Proposed for 2006-2007**

**Activity:**

Evaluate the effectiveness of the combination of Data Analysis and Data Analysis Lab.

**Activity:**

Implement the changes to Program Outcomes and Intended Learning Outcomes identified in the following summary.

### *Mechanical Engineering Technology*

#### **Summary**

This report covers Program Outcome (PO) assessment and Program Educational Objectives (PEO's). Assessment results are presented to the faculty and the MMET Industrial Advisory Board. Data has been collected from the Co-op Results survey and is in process of being collected from the Alumni surveys. The Industrial Advisory Board along with the faculty and some Alumni revised the survey and is awaiting return. Many course actions are not able to be assessed due to awaiting the compilation of the survey data.

The program outcomes and program educational objectives from the previous report have been revised and extended into 2007. Planned upcoming MET Curriculum Committee meetings will have on the agenda any issues to complete or revise ones that need modification. Once evaluated this CIP matrix will be presented to the Industrial Advisory Board and the Department faculty for validation.

One successful achievement can be highlighted in this report as to the effectiveness of the process. It was found through the ILO student evaluations that a specific lab experience, corrosion in the materials testing lab, was given a poor rating. Corrective action was implemented in 2005 and thus fared well in the 2006 student ILO evaluations.

#### **Process**

The MET CIP is based on the assessment of the degree to which graduates demonstrate competence in PEO's with in 5 years of completing the program and students

demonstrate competence in PO's prior to graduation. PEO's are assessed every other year and are due to be assessed this academic year. PO's are assessed yearly. Based on the PEO and PO Assessment results, improvement projects are identified and entered in the MET Continuous Improvement Action Plan document. Faculty are asked to volunteer to assume responsibility for various projects. Implementation plans are reviewed by the MET Curriculum Committee. The effect of these projects is measured through the normal PEO and PO Assessment process.

### *Packaging Science (Undergraduate)*

#### **Introduction**

This document reports and summarized the activities undertaken in the past 2005-2006 academic year to fulfill the objectives of the Packaging Science Continuous Improvement Process. The report consists of the following sections: summary, results from 2005-2006, revised educational program objectives, revised program outcomes, plan of action of 2006-2007, and supporting documentation.

#### **Results from 2005-2006**

The initial Middles States outcomes assessment proposal, created last year, recommended data collection from the following three sources: 1. an alumni survey, 2. co-op/placement reports which reflect both student and employer feedback, and 3. company evaluation of sponsored class projects. The data collected were limited. No alumni survey was sent out thus no data collected. There were no company sponsored class projects thus no data were collected.

There were data attained from the co-op / placement reports. This data included employer feedback on student co-op performance in the areas of quality of work, quantity of

work, competence, ability to learn, initiative, reliability, judgment, attitude, personal relations, communication skills, overall performance, self awareness, and leadership. The measures of central tendency and ranges are indicated in the attached appendices. On a 1-5 scale the highest rated characteristic was “attitude” with a mean of 4.46, (n=138). The lowest rated characteristic was “leadership” with a mean of 3.19, (n=138). It should be noted the means of all characteristics were rated higher than the previous years scores (also attached as an appendix). This indicates a positive trend.

### **Summary**

While some data were collected from the initial outcome assessment proposal it is recommended that modifications be made to the initial proposal to increase the efficiency and effectiveness of the continuous improvement process. This report is the second document created for the Middle States accreditation process and revisions, modifications, and improvements are a step forward in the CIP process.

The program educational and program objectives from the previous years report (04-05) have been updated and modified. The assessment methods, metrics, assessment responsibilities, and frequency were organized in a table. This new table also contains a space for assessment results, recommendations, and actions taken. These new objectives / outcomes and the ensuing rubric will be validated by the RIT packaging science faculty and Industry Advisory Board. They will be assess by these parties at a frequency of every two years and modified by the program chair. This new organization represents a step forward in the process of creating a fully functional closed loop continuous improvement process.

## **Plan of Action for 2006-2007**

Validation of the program educational objectives and program outcomes will be performed by review of the Packaging Science faculty and the Industry Advisory Board.

Graduate survey will be created to collect the necessary information specified in the program educational objective matrix and the program outcome matrix.

Currently “Marketing for Packaging” is the unofficial capstone course. This course will undergo a curriculum change to include all elements of packaging development and be re-titled “Packaging Development”. This course will serve as the venue for senior level culminating projects which will be evaluated using a rubric by classmates, faculty members and industry professionals.

*Packaging Science (Graduate)*

### **Outcomes Assessment Report**

The program educational and program objectives from the previous years report (04-05) have been modified to better reflect the original intent. (See new version below)

**Outcome #1** – Thesis topic currency and application is measured by the number of topic revisions before topic approval

Performance criteria – the number of proposal (topic) revisions

Strategy – Research methods course; faculty/student gatherings to discuss research strategies and current topics; special meetings are arranged with the topic specialist in the library

Assessment methods – Document number of proposal attempts and proposals approved by the thesis committee members and by XL colleagues’ direct reports (XL); ranking of topic currency and relevance by Industrial Advisory Board (IAB)

Metrics – final approval by faculty to involve thesis committee; approval by direct report (XL)

Individual responsible for assessment - graduate program chair

Assessment frequency – ongoing in each quarter; committee and employer approval; IAB ranking bi-annually

Report to whom/when – periodically during the quarter and/or academic year to program coordinators, faculty, thesis committee members, and IAB

Recommendations – multiple proposal revisions require additional advising session with graduate program coordinator and committee member topic specialist; proposals rankings will be disseminated to faculty, and committee members to better identify current topics

Types of assessment action – the number of proposals submitted where measured against the number of thesis proposals accepted

#### *Manufacturing and Mechanical Systems Integration (Graduate)*

The review of co-op data (Figure 1 and 2) attached to the end of the report, both from the students and the employer, indicate that the program is preparing students adequately for the workforce. A rating of 4 or higher is considered better and areas of improvement are identified by ratings less than a 4. The following are specific points of interest.

- The level of opportunity to work effectively with diverse individuals and team members was higher in the industry than the level of academic preparation
- The level of opportunity to exhibit ethical and professional responsibility was higher in the industry than the level of academic preparation



- The academic environment provided more opportunity to students to use modern techniques and engineering tools than in industry, which speaks very highly of the state-of-the-art laboratory tools provided in the various courses within the program.
- Even though the student report indicates that the academic preparation was adequate in the areas of communication for what the employer wanted, the employer report indicates a definite need for improvement in this area

Based on the above findings the main item for continuous improvement for 20061-20064 will be the area of communication. International students, who enter the program, will be required to do the Michigan Test. Based on the results and deficiencies, students will be required to register for appropriate English language courses. If appropriate, the same will be applicable for the native students with a GPA less than 3.0.

### **Center for Multidisciplinary Studies**

#### *Applied Arts and Sciences (Undergraduate)*

RIT's Center for Multidisciplinary Studies (CMS) will be known for "connecting the world through customized education." This will be achieved by offering personalized education; providing non-traditional, innovative education; and delivering RIT-anywhere.

#### **Mission**

The Center for Multidisciplinary Studies extends RIT's national and international presence by being a global leader in the development and delivery of high-quality lifelong learning opportunities that blend innovative, unique, and customized multidisciplinary curricula with creative outreach-oriented methods of delivery.

Unlike traditional programs, where curriculum-specific outcomes are defined *a priori* by the faculty, the Applied Arts and Science degrees (and diploma) engage learners in the design of their curriculum and the specification of the learning outcomes. An example of one of the assessed outcomes follows. The full report can be found in the documentation notebook.

*Outcome: Students possess the ability to reflect on their personal and professional goals and to seek lifelong learning options to support these goals*

**Strategies:**

- A new course to assist students in the process of reflecting on their career and personal goals and formulating a plan for lifelong learning to attain those goals.
- Articulation of personal strengths and weaknesses and how those would be transformed through current and future learning.
- Personalized career and professional advising.

**Criteria/Metrics:**

- Evidence of lifelong learning including training, certifications, percent of students continuing through the various applied arts and science credentials

**Evidence:**

- A new course, *Multidisciplinary Life*, was developed and taught for the first time in 20043. This course is required for all candidates for the BS in Applied Arts and Science. In 20043, 21 students completed the course. Since then it has been offered quarterly, in both traditional and on-line formats, with an average of 22 students per section.

- In a survey of 215 of our graduates, we found that 87% are employed either full or part time, 63.3% have worked in a field related to their CMS degree, and 54.4% agree that their CMS degree assisted them in pursuing a career choice. The next bi-annual survey of CMS graduates will be completed in Winter Quarter of 2007.
- Our alumni belong to over 80 professional organizations, such as American Academy of Professional Coders, American Society for Quality (ASQ), Healthcare Financial Management Association, National Registry of Interpreters for the Deaf, New York State Teacher's Association, and Society for Human Resource Management (SHRM).
- The age range of alumni surveyed (18 to 61) indicates that CMS graduates are involved in lifelong learning.

*Professional Studies (Graduate)*

The MS follows the same general philosophy and curricular structure of the undergraduate program. Unlike traditional programs, where curriculum-specific outcomes are defined *a priori* by the faculty, the Applied Arts and Science degrees (and diploma) engage learners in the design of their curriculum and the specification of the learning outcomes. An example of one of the assessed outcomes follows. The full report can be found in the documentation notebook.

The basic structure of the degree, combined with student-centered processes and validation methods, ensures the following programmatic outcomes.

Students possess the ability to synthesize and apply knowledge across multiple disciplines

**Strategies:**

- Articulation of personal strengths and weaknesses and how those would be transformed through integrated, multidisciplinary professional studies.
- Student engagement in the design and selection of two to three professional concentrations drawn from existing RIT graduate programs.

**Criteria/Metrics:**

- Successful completion of coursework in the cross disciplinary professional concentrations
- Design and completion of a cross disciplinary Capstone Project

**Evidence:**

- In 2003, CMS certified 18 students to receive the MS degree; in 2004, CMS certified 14 students to receive the MS degree; and in 2005, CMS certified 29 students to receive the MS degree. These students reached their goal of graduation by completing a personal Statement of Educational and Career Objectives (SECO); preparing, in conjunction with their professional advisor and the Director of the Graduate Program, a customized Plan of Study; and completing a minimum of two professional concentrations –the first concentration must be a minimum of 16 credit hours drawn from a single graduate program; the second and third (optional) concentrations must be a minimum of 12 credit hours each.
- The average GPA of CMS graduates in 2003 was 3.60 and in 2004 it was 3.54. In 2005, the average GPA was 3.63.

- Students individually prepare Graduate Review Committee (GRC) proposals that clearly identify concentrations of courses that they intend to study. The proposal includes a well-researched and referenced Statement of Educational and Career Objectives that clearly identifies key issues, current challenges, opportunities, and the rationale for their proposed Plan of Study, which is also part of the proposal. This document serves to link each student's background with his or her personal and professional aspirations by addressing questions such as:
  1. What are your broad educational and career objectives?
  2. What do you know and what do you need to learn?
  3. What skills have you acquired from the jobs or positions you've held?
  4. What will be your next job?
  5. What are the themes in your Plan of Study?
  6. What is the significance of each course in your individual concentrations, and of your electives, to the overall theme of your Plan of Study?
  7. Why have you chosen the MS in Professional Studies program?
- Students' customized Plans of Study provide a roadmap for completing the required 48 credit hours of education, which includes two to three professional concentrations, *Context and Trends*, the *Capstone Project*, and electives. Typical professional concentrations would cover areas such as Marketing, Project Management, Technical Information Design, Communication & Media, Instructional Technology, and General Management.

- Candidates for the MS in Professional Studies are required to take two courses: *Context and Trends* and *Capstone Project*.
- In *Context and Trends* students gain a variety of conceptual and analytical skills that will be useful in preparing their Plans of Study. Students explore important trends that will affect their choice of concentrations and ultimately their careers. And it is in this required course that students create their GRC proposal that consists of an Executive Summary, Statement of Educational and Career Objectives, Plan of Study, Preliminary Capstone Project Description, References Cited, and an updated Resume.
- For their Capstone Project and prior to registering for course credit, students are required to submit a detailed proposal that identifies specifically:
  1. Background statement about a real world problem relating to their unique degree focus;
  2. How they will contribute to solving this problem;
  3. A subject matter expert who is able to serve as a Capstone Project mentor;
  4. Anticipated project results;
  5. A plan of work, timeline, budget, and explanation for overcoming potential challenges;
  6. Reference list (of sources cited in background statement).

***Department of Civil Engineering Technology/Environmental Management/Safety***

## Civil Engineering Technology

### **Introduction:**

This document serves to summarize the activities undertaken during the 2005-06 academic year in fulfillment of the Civil Engineering Technology Continuous Improvement Plan. This report focuses mainly on program outcomes, the actions needed and taken during the year, and suggested actions for the coming year. Some information is provided related to the Program Educational Objectives, as well, if new assessment data was available.

### **Summary:**

As the Department of Civil Engineering Technology, Environmental Management and Safety, our vision is to be a recognized national leader in providing engineering technology and related programs in the civil, environmental and safety fields that provide students with the power to shape the world.

The curriculum for the Civil Engineering Technology program at RIT has evolved over nearly 30 years, built on the experience of faculty and professionals, to deliver quality engineering technology education to students who are subsequently very successful upon entry into the workforce. Therefore, the development of the vision, mission, educational objectives and program outcomes were completed with the faculty and the Civil Engineering Technology program Industrial Advisory Board and were reported in the 04-05 report. The CET IAB is a dynamic group of civil and construction professionals, including alumni, employers, private and public sector engineers and contractors. These people have continuously provided input on our curriculum, representing the general needs of industry.

### **Program Educational Objectives: Assessment and Actions**

As summarized in the attached assessment matrix, the PEO's are assessed based on information available quarterly, annually, and every 5 years through our alumni survey. This evaluation cycle includes results from coop surveys and graduate surveys, and does not include new alumni survey information.

The assessment data indicates that our PEO's continue to be successfully fulfilled. No action is needed at this level.

## **Program Outcomes: Assessment and Actions**

The program outcomes (PO's) are assessed using information available from coursework, course grades, quarterly coop reports, and are reviewed annually. The attached continuous improvement matrix provides details.

Action Items for 2005-06, based on 04-05 assessment:

- Investigate other assessment methods, beyond success metrics on graded work.
  - The department began supplementing the standard course evaluation process with Intended Learning Outcome (ILO) assessment. The students assess how effectively each of the ILOs were covered in the course, and how confident they feel in their knowledge of those ILOs, on a scale of 1 to 5, 5 being high.
- Reword question on graduate survey to clarify a "no" answer on the FE
  - The survey now asks about the FE in two stages. The first question is "have you taken the EIT/FE?" and the second question is "if yes, did you pass?". That seems to have clarified the results
- Look for ways to separate civil students from aggregate class when calculating success rate.
  - We have not made any progress on this action item, except for asking our student workers to manually review the course lists, determine how many students in a class were civil, and then manually calculate the success rate. We have only completed this exercise for a couple of relevant courses.
- Obtain assessment information from LA for Writing courses and Effective Technical Communications
  - We understand that this is being collected for Middlestates, but it has not yet been provided to us.

Action Items for 2006-07, based on 05-07 assessment:

- Obtain assessment information from LA for Writing courses and Effective Technical Communications
- Develop a better way to report project grades and project peer reviews in a timely manner
- Look into the struggles related to completing the survey projects
- Investigate including GIS/GPS into surveying sequence
- Better align the ILOs in 404 to PO a4 for next cycle



- Review 0608-497 ILOs with Abi regarding low ratings
- Obtain ILO ratings from MMET for Statics, Strength of Materials and Engineering Economics
- Review ILOs for 0608-422 and consider expanding
- Change metric in P11 to relate to 0608-304 Structural Loads and Systems

## **Environmental Management and Technology**

### **Introduction:**

This document serves to summarize the activities undertaken during the 2005-06 academic year in fulfillment of the Environmental Management and Technology Continuous Improvement Plan. This report focuses on program objectives established in 2004, and suggested actions for the coming year, based on our first year of measurement.

### **Summary:**

As the Department of Civil Engineering Technology, Environmental Management and Safety, our vision is to be a recognized national leader in providing engineering technology and related programs in the civil, environmental and safety fields that provide students with the power to shape the world. The mission of the department is to provide an environment in which faculty and staff can provide strong, innovative, accredited (where appropriate) programs in Civil Engineering Technology, Environmental Management, Safety Technology, and Environmental, Health & Safety Management. Specific goals were provided in the 04-05 report, and are not repeated here.

Environmental Management & Technology shall create and maintain a high-quality, practitioner oriented educational program in the forefront of environmental technology, policy and practice.

### **Program Objectives:**

1. Prepare our students to assume professional positions as environmental managers in industry and government.
2. Provide our students with the necessary skills to advance towards leadership positions.
3. Instill in our students a sense of both environmental stewardship and economic responsibility so they may manage environmental projects and programs responsibly and efficiently.

### **Program Objectives: Assessment and Actions**

The program objectives (PO's) are assessed using information available from coursework, course grades, quarterly coop reports, and are reviewed annually. The attached continuous improvement matrix provides details.

Action Items for 2005-06, based on 04-05 assessment:

- Investigate other assessment methods, beyond success metrics on course work; measure ILO's at the end of a course, ask faculty or adjuncts to provide information on specific projects or exercises.
  - ILO assessment was developed and implemented for the entire CETEMS department including environmental and safety classes beginning 051. Results of these ILO evaluations have been included in the PO assessment table.
- Obtain assessment information from LA for Writing courses, Economics, and Ethics.
  - Nothing aside from final grades has been provided here. However, we believe data should be available because of the Middlestates process.
- Obtain assessment information from Math and Science.
  - Nothing aside from final grades has been provided here. However, we believe data should be available because of the Middlestates process.
- Incorporate graduate survey data into assessment.
  - Not done. Needs to be completed in 06-07 cycle.

Action Items for 2006-07, based on 05-06 assessment:

- Incorporate graduate survey data and/or alumni survey data into assessment.
- Push for assessment data from math, science and liberal arts.
- Determine why ILO's were not measured for some core environmental courses in 05 and be sure they are measured in 06-07
- Work with Coop and Placement office to incorporate job title into the reporting structure of coop data.

**Introduction:**

This document serves to summarize the activities undertaken during the 2005-06 academic year in fulfillment of the Safety Technology Continuous Improvement Plan. This report focuses mainly on program outcomes, the actions needed and taken during the year, and suggested actions for the coming year. Some information is provided related to the Program Educational Objectives, as well, if new assessment data was available.

**Summary:**

As the Department of Civil Engineering Technology, Environmental Management and Safety, our vision is to be a recognized national leader in providing engineering technology and related programs in the civil, environmental and safety fields that provide students with the power to shape the world.

The mission of the safety technology program is to provide an academically challenging program that prepares graduates with the skills and knowledge to address their organization's immediate and long term safety needs, including protection and preservation of workers, buildings, equipment and corporate reputations. This includes creating physically safer workplaces and modifying employee behaviors. This also may include implementing voluntary protection programs that go beyond legal and regulatory standards. This program will respond to the changing needs of society by being able to be completed through traditional or nontraditional (distance) means.

Program Educational Objectives and Program Outcomes were summarized in the 04-05 report, and are provided in the attached tables. Therefore, they are not repeated here.

**Program Educational Objectives: Assessment and Actions**

As summarized in the attached assessment matrix, the PEO's are assessed based on information available quarterly, annually, and every 5 years through our alumni survey. This evaluation cycle includes results from coop surveys and graduate surveys, and does not include new alumni survey information. If information has been provided voluntarily by the alumni, we have made note.

The assessment data indicates that our PEO's continue to be successfully fulfilled. No action is needed at this level.

### **Program Outcomes: Assessment and Actions**

The program outcomes (PO's) are assessed using information available from coursework, course grades, quarterly coop reports, and are reviewed annually. The attached continuous improvement matrix provides details.

Action Items for 2005-06, based on 04-05 assessment:

- Investigate and quickly implement other assessment methods, beyond success metrics on graded work. This is a critical action for Safety Technology because of our interim report that is required in June, 2006.
  - ILO assessment was developed and implemented for the entire CETEMS department including environmental and safety classes beginning 051. Results of these ILO evaluations have been included in the PO assessment table.
- Look for ways to separate safety students from aggregate class when calculating success rate, particularly in the sciences, where we will have little control over the assessment of the course objectives.
  - No progress was made here, particularly because of our move away from grade based success rates. More weight was given to successful completion of the math, science or liberal arts requirements as a whole.
- Obtain assessment information from LA for Writing courses, Ethics and Effective Technical Communications
  - Nothing aside from final grades has been provided here. However, we believe data should be available because of the Middlestates process.

Action Items for 2006-07, based on 05-06 assessment:

- Emphasize the need for environmental and safety students to be included in the graduate survey, particularly because of the small pool of graduates. If the response rate is too low, have department staff call or e-mail to obtain important information gathered from that survey.
- Investigate the level and amount of statistics used in the System Safety course
- Confirm that "not applicable" answers in the employer evaluations provided by the Coop and Placement office are not being averaged into the reported values.

- Study the wording in Question 9 of the employer evaluations to determine if it is appropriate for the Safety Tech students.
- Modify the assessment method for criteria CS-5.b. to include another point of data related to toxicology.
- Obtain ILO ratings from courses outside of our department

*Environmental Health and Safety (Graduate Program)*

**Introduction:**

This document serves to summarize the activities undertaken during the 2005-06 academic year in fulfillment of the Environmental Health and Safety Management Continuous Improvement Plan. This report focuses on program objectives established in 2004, and suggested actions for the coming year, based on our first year of measurement.

**Summary:**

As the Department of Civil Engineering Technology, Environmental Management, and Safety, our vision is to be a recognized national leader in providing engineering technology and related programs in the civil, environmental and safety fields that provide students with the power to shape the world. The mission of the department is to provide an environment in which faculty and staff can provide strong, innovative, accredited (where appropriate) programs in Civil Engineering Technology, Environmental Management, Safety Technology, and Environmental, Health & Safety Management. Specific goals were listed in the 04-05 report and have not changed.

The mission of the Environmental, Health, and Safety Management Master of Science Degree program is to prepare traditional and non-traditional local and distance students to manage their organization's environmental, health and safety systems by providing them

with the appropriate and current environmental, health and safety management strategy and tools.

Objectives:

1. Provide a curriculum that includes environmental, health and safety management strategies and tools.
2. Provide a flexible learning environment that allows the program to be completed through traditional and, or non-tradition means.
3. Produce students who are prepared to further their career in the field of environmental, health and safety management.

### **Program Objectives: Assessment and Actions**

The program objectives (PO's) are assessed using information available from coursework, course grades, quarterly coop reports, and are reviewed annually. The attached continuous improvement matrix provides details.

Action Items for 2005-06, based on 04-05 assessment:

- Have graduate “success rates” of B or better added to the CAST process
  - The data for the success rates was included in the CAST tables, but calculations were not done. Also, the CAST process stopped when personnel changed in the dean's office. We have calculated the values within the department for this round.
  - We have also begun to rely less heavily on the success rates, and only use them as one of several points of measurement. The department began supplementing the standard course evaluation process with Intended Learning Outcome (ILO) assessment. The students assess how effectively each of the ILOs were covered in the course, and how confident they feel in their knowledge of those ILOs, on a

scale of 1 to 5, 5 being high. This has begun to be implemented in the graduate courses, where possible, in 06-07.

- Find a way to document those admitted to the program not needing the foundation courses or coop. They will need some alternative metrics for objectives 1 and 3.
  - After further evaluation, we determined that this was not necessary since students who are not required to take a foundation courses or a coop have demonstrated at the time of admission that they have adequate related work experience.

Action Items for 2006-07, based on 05-06 assessment:

- Reevaluate program assessment matrix and make revisions as appropriate.
- Evaluate ways to allow students to assess the program immediately after they graduate.
- Evaluate ways to allow program alumni to assess the program.
- Evaluate ways to allow the program industrial advisory board to assess the program.



## **Appendix B General Education: A White Paper for the RIT Community**

# GENERAL EDUCATION: A WHITE PAPER FOR THE RIT COMMUNITY

## COLLEGE OF LIBERAL ARTS, COLLEGE OF SCIENCE & NATIONAL TECHNICAL INSTITUTE FOR THE DEAF

### General Education Learning Outcomes & Assessment

#### PREFACE

**Statement of Project Purpose:** The New York State Education Department “general philosophical statement” describes the liberal arts and sciences (general education) as a set of educational experiences “that are either of a general and/or theoretical nature that are designed to develop judgment and understanding about [our] relationship to the social, cultural, and natural facets of [the] total environment.” Rochester Institute of Technology fully subscribes to both the spirit and practice of this definition. RIT further believes, consistent with the historically expressed institutional agenda of preparing graduates

**“... for the making of a living and the living of a life, not as two processes, but as one ...”**  
(G. W. Hoke, *Blazing New Trails*, 1937)

that, although general education has its primary focus on the “living of a life” and that the professional program core is directed principally toward the “making of a living,” the “not as two processes, but as one” is to be reflected not only in life after graduation, but also in the RIT educational experience. Specifically, the Learning Outcomes proposed herein have been designed to accommodate an RIT general education experience consistent with, complementary to, and supportive of the values deeply embedded within students’ professional fields of study and with their interests and expectations. RIT undergraduate education would thereby be characterized as a single integrated and coherent whole rather than as two (or more) discrete, disconnected and discontinuous elements. Such a seamless melding of the general education and professional core curricula will thereby constitute a highly distinctive characteristic of the RIT educational experience.

The present White Paper, which is in response to the first phase of a charge from Provost Stanley D. McKenzie directed toward a comprehensive study of general education at RIT, is presented to the faculty for review, comment, enhancement and improvement prior to its submission to Provost McKenzie and to initiation of the second phase of the study.

**Statement of Project Genesis & Process:** In late 2004 Provost Stanley D. McKenzie initiated a process designed to determine the desirability of a comprehensive review of General Education at RIT as a consequence of at least the following factors:

1. the collection of RIT undergraduate programs continues to change significantly (new programs added and existing programs improved and updated),
2. the profile of the RIT undergraduate student has changed dramatically over the recent past,
3. the Institute has recently developed, approved, and begun implementation of the new 10-year strategic plan (*Category of One University: Uniquely Blending Academic Programs with Experiential Learning for Students’ Success*).

Provost McKenzie described a two-phase project in which the first of the two phases would occur:

“... on a very high philosophical plane responding to the question, ‘What general education experience does a technical professional (or a professional within a technology field) need to be considered a competent and well-educated citizen of the world?’ In England 150 years ago, the question was phrased as, ‘What should the outcomes of an Oxford (or Cambridge) education be for a young gentleman?’ and the answer was, ‘How to recognize rot.’ For RIT in the 21<sup>st</sup> Century, the answer will

be much more complex and will encompass the humanities, social sciences, natural sciences, and mathematics. [This first phase would be carried out] largely on that philosophical level to articulate the desired educational outcomes.”

The second phase would be “to hammer out a General Education mask of 90 credits that would meet [all accreditation] requirements (and in a truncated 45 credit version for the BFA programs) that achieved the educational outcomes with plenty of choice and self-determination for the students.” The present White Paper has been prepared and is submitted in response to the first phase of Provost McKenzie’s charge.

In October of 2005, pursuant to extensive discussion with faculty, deans, and other academic administrators (associate deans, assistant deans, department heads/chairs), the Executive Committee and the full Academic Senate, the faculty study team (listed below) was selected by the respective deans, from the three RIT academic colleges principally responsible for the delivery of the General Education Curriculum (College of Liberal Arts, College of Science, and the National Technical Institute for the Deaf), and commissioned by the Provost.

- Lisa Hermsen, Department of English, College of Liberal Arts; email: [lmhgsl@ritvax.isc.rit.edu](mailto:lmhgsl@ritvax.isc.rit.edu)
- Ron Jodoin, Department of Physics, College of Science; email: [rejsps@ritvax.isc.rit.edu](mailto:rejsps@ritvax.isc.rit.edu)
- Joel Kastner, Chester F. Carlson Center for Imaging Science, College of Science; email: [jhkpci@cis.rit.edu](mailto:jhkpci@cis.rit.edu)
- Marilu Raman, Department of Science & Mathematics, National Technical Institute for the Deaf; email: [mlrntm@ritvax.isc.rit.edu](mailto:mlrntm@ritvax.isc.rit.edu)
- Pat Scanlon, Department of Communication, College of Liberal Arts; email: [pmsgsl@ritvax.isc.rit.edu](mailto:pmsgsl@ritvax.isc.rit.edu)
- Katie Schmitz, Department of Liberal Studies, National Technical Institute for the Deaf; email: [kls4344@ritvax.isc.rit.edu](mailto:kls4344@ritvax.isc.rit.edu)
- Matt Searls, Department of Cultural & Creative Studies, National Technical Institute for the Deaf; email: [jmsdhd@ritvax.isc.rit.edu](mailto:jmsdhd@ritvax.isc.rit.edu)
- Sean Sutton, Department of Political Science, College of Liberal Arts; email: [sdsgsm@ritvax.isc.rit.edu](mailto:sdsgsm@ritvax.isc.rit.edu)
- Kristen Waterstram-Rich, Department of Medical Sciences, College of Science; email: [kmw4088@ritvax.isc.rit.edu](mailto:kmw4088@ritvax.isc.rit.edu)
- Bob Clark, Professor of Chemistry Emeritus & Dean Emeritus, College of Science (Project Facilitator); email: [racsse@cis.rit.edu](mailto:racsse@cis.rit.edu)

The Team has produced the present White Paper, which consists of:

1. A set of **Learning Outcomes** describing the knowledge base and skill set expectations of the RIT General Education Curriculum and
2. The associated **Outcomes Assessment** strategies and tools

which are consistent with and support

1. **Disciplinary Collaboration** (liberal arts & liberal sciences, deaf studies, and all RIT professional degree programs)
2. **The RIT Institutional Framework** (“*Category of One University: Uniquely Blending Academic Programs with Experiential Learning for Student Success*”),
3. **Curricular Relevance** to students and their professional programs, and
4. **Regulatory Conformity** with the New York State Education Department and external/professional accrediting agencies.

## LEARNING OUTCOMES & ASSESSMENT

**Learning Outcomes and Assessment: General Considerations.** The Faculty General Education Team developed 12 Learning Outcomes and Assessment Tools in response to two questions:

- “What are the knowledge base and skill set expectations of the RIT General Education Curriculum?”
- “How will we know whether the students acquire that knowledge and those skills?”

The Team’s working definition of a learning outcome is “what a student knows and/or is able to do as a result of an educational experience.” The 12 General Education Learning Outcomes were the consensus of the Team and were created with only three restrictions:

1. the New York State Education Department regulations defining the “liberal arts and sciences”
2. the principles articulated in the RIT strategic plan, *Category of One University: Uniquely Blending Academic Programs with Experiential Learning for Student Success*
3. the consensus that the number of Outcomes should probably be not less than five or six nor more than about a dozen.

No priority is implied or intended by the order/sequence in which the Learning Outcomes are presented.

The assessment tools developed by the Faculty General Education Team were designed to provide an independent—but complementary to the existing methodologies of course-by-course evaluation—measure of achievement through validation that both the student and the Curriculum had successfully met the objectives expressed in the Learning Outcomes.

All RIT students are required to successfully complete the total number of credit hours with the distribution(s) across the humanities and social sciences (liberal arts), and mathematics and natural sciences (liberal sciences) disciplines prescribed by Institute Policy for the RIT General Education Curriculum. Any set of General Education Learning Outcomes must be accurately reflective of the objectives of the Institute Curriculum and *vice versa*. A set of operational principles<sup>2</sup> reflective of the spirit and intent of the RIT Faculty General Education Team in their development of the Assessment Tools is presented herein.

The assessment of student learning:

1. is a vehicle for educational improvement that begins with institutional educational values,
2. measures not only what students know but what they can do with what they know as revealed by performance over time,
3. is most effective when it reflects learning as multidimensional and integrated,
4. entails comparing educational performance with educational purposes and expectations derived from institutional mission, faculty intention in curricular design, and a knowledge of the student’s own goals,
5. is most effective when the programs it seeks to improve have clear and explicitly stated purposes,
6. requires attention to outcomes but equally to the experiences that lead to those outcomes,
7. is a process whose power is cumulative and therefore most effective when it is ongoing, not episodic,
8. is a campus-wide responsibility and fosters wider improvement when representatives from across the educational community are involved,

9. makes a difference when it illuminates questions that people really care about,
10. makes its greatest contribution when the information it provides about learning outcomes is seen as an integral part of decision making central to the institution's planning, budgeting, and personnel decisions, and
11. is a conduit through which educators meet responsibilities to students and to the public.

The 12 Learning Outcomes are designed to constitute a coherent set descriptive of a comprehensive RIT general education experience. The assessment tools fall into two distinct categories: those designed to assess the work and measure the achievement of individual students, and those designed to validate the Curriculum as a whole by assessing the collective achievement of groups of students and/or graduates. In what follows, the relevant Assessment Tools are listed with each Learning Outcome and are correspondingly designated as an **Individual Student Assessment** or **General Education Curriculum Assessment**.

**RIT General Education: Learning Outcomes & Assessment Tools.** The following lists the 12 General Education Learning Outcomes developed by the Faculty General Education Team along with the relevant Assessment Tools.

- I. **Communication Strategies & Skills:** by the time of graduation from RIT, students will have demonstrated the ability to:
  - A. effectively express themselves in written, oral, visual, and multimedia modalities in their first language and in a second language of their choice,
  - B. effectively comprehend information through reading, listening and visual communication in their first language and in a second language of their choice, and
  - C. communicate effectively using research strategies, methodologies, and reporting (data acquisition and recording, analysis, synthesis, citation methods) relevant to their professional field.

**Individual Student Assessment:**

- Holistic evaluation of selected student written, oral, visual, and multimedia communication from the General Education curriculum and courses and other educational activities, such as independent study, research papers/projects, senior thesis, or other capstone projects from the student's professional core.
- Diagnostic and exit testing for writing: Placement exams for entering students and exit testing of measurable writing skills appropriate to a student's degree program and professional field (see the current Institute Writing Policy), in the form of a portfolio and/or individual writing exercise.

- II. **Critical Thinking:** by the time of graduation from RIT, students will have demonstrated the ability to:
  - A. use qualitative and quantitative data to formulate/construct hypotheses, theories and theses,
  - B. acquire, assess, organize, interpret, analyze, synthesize, and apply qualitative and quantitative data in support of hypotheses, theories, and theses,
  - C. construct logical and reasonable arguments, support them with relevant evidence, and anticipate counterarguments, along with the complementary ability to analyze and evaluate arguments rationally and civilly, and
  - D. describe and employ modes of intellectual inquiry, *e.g.*, inductive and deductive reasoning.

**Individual Student Assessment:**

- Term papers and other major written, oral, visual, and multimedia work in relevant general education courses, and other educational activities, such as independent study, research papers/projects, senior thesis, or other capstone projects from the student's professional core.

**III. Mathematics & Quantitative Reasoning:** by the time of graduation from RIT, students will have demonstrated the ability to:

- A. use:
- basic algebraic concepts and techniques,
  - basic geometric concepts and techniques,
  - basic statistical concepts and techniques,
  - scientific notation and estimation of calculations involving very large and very small quantities,
- B. apply numerical literacy to life situations that include the ability to read graphs, compare and analyze quantities, calculate averages and percentages, and
- C. function effectively at a level of mathematical competency/fluency commensurate with the foundational requirements of their professional degree programs.

**Individual Student Assessment:**

- Successful completion of professional degree requirements requiring mathematical skills.

**General Education Curriculum Assessment:**

- Track the number of students who pass those courses that include mathematical content offered by the College of Science, the College of Liberal Arts and the National Technical Institute for the Deaf.
- Track the number of students who take more mathematics courses beyond the requirements of their degree programs.
- Track the number of students who take courses in Data Analysis and choose to take a minor in mathematics or statistics.

**IV. Ethics & Values:** by the time of graduation from RIT, students will have demonstrated the ability to:

- A. identify and describe ethical issues and conflicts embedded in political, social, environmental, business, and scientific/technological situations,
- B. describe how the ethics of political, social, environmental, business, and scientific/technological issues and conflicts differ among cultures, and
- C. apply the principles of ethical decision-making in personal and professional settings.

**Individual Student Assessment:**

- **Student work (papers, projects, productions) devoted to or inclusive of ethical issues from courses in both the General Education Curriculum and the student's professional core.**

**V. Globalization:** by the time of graduation from RIT, students will have demonstrated the ability to:

- A. describe other cultures in the context of the growing global community and the place (*e.g.*, political, strategic, and economic) the United States occupies in the global community,

- B. summarize the significant similarities and differences found when religions, political systems, educational systems, business practices and cultural mores from around the world are compared, and
- C. work in a global society and economy by applying knowledge of other cultures.

**Individual Student Assessment:**

- Term papers and/or presentations demonstrating this awareness and knowledge in relevant liberal arts courses; for example, Writing, Humanities, and Social Sciences.
- Demonstrated application of this knowledge through the use of references and incorporation of analysis in other projects, papers, and presentations required for disciplinary courses.
- Documentation of participation in service activities that promote cultural awareness and efforts to improve international and/or intercultural relations.

**General Education Curriculum Assessment:**

- Track the number of students who have participated in an international learning experience, such as a semester abroad or international fellowship or a co-op work experience in a non-U.S. setting.

**VI. Civic & Social Responsibility:** by the time of graduation from RIT, students will have demonstrated the ability to:

- A. describe the principles and purposes of the American political order and its place in the global community, and
- B. fulfill civic responsibilities that include the promotion of social justice, human rights, and equality among citizens, at local, regional, national, and global levels.

**Individual Student Assessment:**

- Documentation of students' involvement and the level of their involvement in student government, in the political community, in civic (community service) projects either by vocation or volunteer, and fund raising.

**General Education Curriculum Assessment:**

- Track the number of students involved and the level of their involvement in student government, in the political community, in civic (community service) projects either by vocation or volunteer, and fund raising.
- Track the number of students who take courses that concern civil rights, constitutional law, American politics, history, and related subjects.

**VII. Epistemology: Classification, Integration & Application of Knowledge:** by the time of graduation from RIT, students will have demonstrated the ability to:

- A. describe the essential knowledge, principles and methods proper, but not limited, to mathematics, the physical and biological sciences, literature, history, philosophy, social sciences, and the arts,
- B. connect and integrate the knowledge and principles and methods of study and analysis acquired in general education with their major field of study, and
- C. recognize and describe the interrelatedness of mathematics, science, engineering, technology, humanities, social sciences, and the arts.

**Individual Student Assessment:**

- Projects replicating either or both qualitative and quantitative research methods by applying appropriate epistemological models of reasoning and writing in research projects and analytical essays in appropriate disciplinary fields. In these projects, students will express and demonstrate an awareness of traditional and creative connections among concepts from different epistemological perspectives, framing them in appropriate disciplinary contexts.

**VIII. Scientific Literacy:** by the time of graduation from RIT, students will have demonstrated the ability to:

- A. describe the basic concepts, principles and elements that describe the physical, natural, life, and medical sciences,
- B. describe and apply the methodologies used to identify and solve scientific problems,
- C. detect flaws in scientific and nonscientific arguments; recognize and be aware of controversies between the scientific and nonscientific approaches; understand and appreciate scientific knowledge and recognize “pseudo-science,” and
- D. employ scientific competency/fluency at a level commensurate with the foundational requirements of their professional degree program.

**Individual Student Assessment:**

- Modeling of scientific method(s) through participation in laboratory experiences that involve written report and evaluation of experimental designs and results.
- Examinations, with problems that include qualitative and quantitative evaluation of key scientific concepts.
- Written analyses of contemporary debates in scientific research, including appropriate citations to relevant contemporary and historical scientific literature.

**IX. Computer Literacy:** by the time of graduation from RIT, students will have demonstrated the ability to:

- A. use information technology for communication, research, and problem-solving in both personal and professional settings.

**Individual Student Assessment:**

- (Non- co-op and interning students) Research project using information technology to address a disciplinary problem or question.
- (Co-op and internship students) Research project using electronic research tools to apply their work experience to a problem confronting their profession.

**X. Artistic & Cultural Literacy:** by the time of graduation from RIT, students will have been exposed to several different creative art forms and will have demonstrated the ability to:

- A. interpret, evaluate and appreciate artistic expression in a variety of media.

**Individual Student Assessment:**

- Documentation of student’s participation in one or more of the following activities each year of the student’s academic career at RIT, either outside of formal courses or as part of a course: attend or participate in a theatrical performance, a museum or art gallery exhibit, a significant craft fair,



or gatherings or celebrations of ethnic groups.

- Critical reviews and analyses of cultural expressions, artifacts, experiences using stated criteria for what constitutes “quality” art/music/theater/etc.

**XI. Interpersonal Relationships:** by the time of graduation from RIT, students will have demonstrated the ability to:

- A. interact effectively with others individually and as part of a team in a variety of different settings (one-on-one, small group, large group), both face-to-face and over a variety of electronic media, and
- B. interact effectively with peers, managers, and subordinates in professional settings, both face-to-face and over a variety of electronic media.

**Individual Student Assessment:**

- Peer evaluations in group projects, both face-to-face and online.
- Evaluations in co-op and other experiential-learning activities.

**XII. Lifelong Learning:** following completion of an undergraduate RIT degree, students will possess the inclination and habit of intellectual inquiry conducive to a lifetime of learning.

**General Education Curriculum Assessment**

- Track the number of RIT graduates who have earned advanced degrees.
- Track the number of RIT alumni who have participated in professional continuing education and/or the Athenaeum Program.
- Track the number of students who take minors, concentrations and dual major options.
- Track alumni involved in interactive internet based educational offerings from RIT.

**CITATIONS**

1. Adapted from **9 Principles of Good Practice for Assessing Student Learning**, The Center for Teaching, Learning and Assessment of Indiana University Kokomo;  
(<http://www.iuk.edu/%7Ekoctla/assessment/9principles.shtm>)