PURDUE SCHOOL OF ENGINEERING AND TECHNOLOGY 2008-2009 ACADEMIC YEAR ASSESSMENT REPORT

Prepared by the School's Assessment Committee and Elaine Cooney and Karen Alfrey, Co-Chairs

January 08, 2009

Introduction

The Purdue School of Engineering and Technology, IUPUI (E&T) continues its tradition of reporting its outcomes assessment activities department by department. As in the past, different departments are at different stages of maturity in their processes. At one extreme, some of the departments' reports are very complete and report historical information from prior years, while at the other extreme, others newer to the process present only current year assessment or only a narrative of their current progress in defining their outcomes assessment processes.

Every department or program has supplied a brief (approximately one page) assessment plan that includes departmental mission, constituents, early career objectives and program learning outcomes. Some departments have more than one degree program, but since the assessment process is integrated, results for all programs within each department are summarized. These reports, submitted to the chair of the E&T Assessment Committee in spring of 2009, focus on details of assessment results and improvements for the *calendar* year 2008. (The first data presented is from spring, 2008 and concludes with fall, 2008. Results from spring 2009 will be included in next year's report.)

Although much of the data included herein is generated and presented at the department or program level, a couple of school-level assessment activities, facilitated by our Assessment Committee during the 2008-09 academic year, are worth mentioning here. First, recognizing that most of our programs would be undergoing accreditation (either first-time or re-accreditation) within the next three years, beginning with CIT, CGT, and MAT in Fall 2009, representatives from each department or program were asked to present to the Assessment Committee an overview of their assessment processes. This generated valuable early feedback as committee members offered suggestions for clarification and improvement of these processes. Second, in response to the initiative to map and assess PULs across the curriculum, we re-mapped the "simplified" PULs (1a,b,c, 2-6) to the accreditation-specific program outcomes evaluated by ABET, NASM and CIDA. These mappings ensure that collected outcomes data can be used to demonstrate how we are doing on attainment of both PULs and accreditation-specific learning outcomes. Finally, a 2008 Alumni survey asked graduates from all our programs to rate their *preparedness* for post-graduation success in areas related to the PULs or program-specific outcomes (e.g. written and oral communication, identifying and solving problems using discipline-specific tools, etc.), their perception of the *importance* of each of these educational outcomes, and the overall *quality* of their education on a scale of 1 (poor preparedness/no importance/marginal quality) to 5 (very good preparedness/very important/excellent quality). The summative results indicate that our graduates are generally satisfied with the quality of their education, with 85% of students giving a rating of 3 (Satisfactory) or higher, and over 70% rating their education as Good or Excellent.

If you are interested in reading reports for prior years, please log on to http://www.planning.iupui.edu/43.html and scroll down to "School Assessment Reports." Then click the year of interest.

The E&T 2008-2009 Assessment Committee

The school's assessment committee has been very active since its inception in the fall semester of 1996. Charles Yokomoto, Professor of Electrical and Computer Engineering, served as the committee chair until his retirement. Starting with the 2006-2007 academic year, Elaine Cooney, Professor and Chair of Electrical and Computer Engineering Technology, now chairs the committee, with Karen Alfrey, Director of the Undergraduate Program in Biomedical Engineering, stepping in as co-chair beginning in Fall 2009. The members of the 2008-2009 committee were the following:

Hasan Akay, Dean's Office
Karen Alfrey, Biomedical Engineering
Debra Burns, Music and Arts Technology
Jerome Clark, Computer and Information Technology
Elaine Cooney, Engineering Technology
Tim Diemer, Organizational Leadership and Supervision
Becky Fetterling, Technical Communications
Alan Jones, Mechanical Engineering
Betty Klein, Design and Communication Technology
Ginger Lauderback, Mechanical Engineering
Emily McLaughlin, Design Technology
Janet Meyer, Freshman Engineering
Darrell Nickolson, Design and Communication Technology
Kenneth Rennels, Engineering Technology
Maher Rizkalla, Electrical and Computer Engineering
Jane Simpson, Electrical and Computer Engineering
Sam White, Dean's Office
Bill White, Engineering Technology
H. Öner Yurtseven, Dean

Assessment Process in the School's Departments

Table 1 characterizes the differences in ways that our eight departments have chosen to implement our common assessment plans. This table was revised by the assessment committee in preparation for this report. Column 2 of the table describes the whether a department's process is based on its professional accreditation or the IUPUI Principles of Undergraduate Learning (PUL). Three of the departments have developed their assessment programs around the engineering accreditation criteria of the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET/EAC), and three by the by the technology accreditation criteria of the Technology Accreditation Commission of ABET (ABET/TAC). CIT uses the ABET/CAC (Computing Accreditation Criteria). Design Technology uses a combination of ABET, PUL's and CIDA (Council for Interior Design Accreditation). OLS has chosen to be guided by the IUPUI Principles of Undergraduate Learning (PULs).

Engineering and technology faculty write Program Outcomes and assess student learning in these outcomes for professional accreditation. The Program Outcomes for engineering programs and technology outcomes are similar to each other, but they are not the same, and they map quite well into IUPUI's PULs. Rather than developing a complex outcomes assessment process where both the ABET outcomes and PUL outcomes are assessed, the ABET directed departments have chosen a strategy of assessing their ABET Program Outcomes and demonstrating through a relational matrix that they cover the PULs.

Table 1. Characterization of Departmental Assessment Processes.

DEPARTMENT	BASIS	PRIMARY STRATEGY	SUPPLEMENTAL SOURCES OF ASSESSMENT DATA
Biomedical Engineering (BME)	ABET/EAC	Assessment of student learning through evidence collected on the measurable learning outcomes developed to meet ABET Criteria and IUPUI's Principles of Undergraduate Learning	Student feedback on their experiences in our new BME courses, including self-assessment of learning and understanding. Assessment of industry's satisfaction using both a survey form that is currently being developed and focus groups (PROPOSED) Assessment of alumni satisfaction through feedback using a process similar to that being developed for industry feedback (PROPOSED) Assessment of success of the program by tracking matriculation rates, graduation rates, successful job placement, graduate school admissions, and advancements. (PROPOSED)
Computer and Information Technology (CIT)	ABET/TAC	Assessment in selected courses that cover the department's outcomes	Student self reports of well they feel they have learned the course outcomes using surveys Retention rates, graduation rates, and number of degrees conferred Continuing students satisfaction using in-house survey Alumni satisfaction Employer satisfaction
Construction Technology (CNT)	ABET/TAC	Assess actual learning in all courses taught by full-time faculty and selected courses taught by associate faculty. Each course is assigned one or more of the department's outcomes for assessment.	Student self reports of well they feel they have learned the course outcomes using surveys Retention rates, graduation rates, and number of degrees conferred Continuing students satisfaction Alumni satisfaction Employer satisfaction
Design Technology (DST)	ABET/PUL	Assess actual learning in all courses taught by full-time faculty and selected courses taught by associate faculty. Each course is assigned one or more of the department's outcomes for assessment; and, utilize assessment done in service courses for all courses required in the plan of study.	Student self reports of how well they feel they have learned the course outcomes using surveys
Electrical and Computer Engineering (ECE)	ABET/EAC	Assess selected courses with strong emphasis on the senior capstone design course and the senior ethics course.	Focus group discussion with seniors Retention rates, graduation rates, and number of degrees conferred Continuing students satisfaction using in-hours survey Alumni satisfaction Employer satisfaction
Electrical and Computer Engineering Technology (ECET)	ABET/TAC	Assess how well students feel they have learned the course objectives/ outcomes using surveys; use rubrics to assess student communication, teamwork, design; targeted exam questions.	Continuing students satisfaction Senior capstone project Student works in selected courses Retention rates, graduation rates, and number of degrees conferred Alumni satisfaction Employer satisfaction
Mechanical Engineering	ABET/EAC	Course learning outcomes	Industrial Advisory Board that provides input on

(ME)		surveys conducted at the end of each semester to determine self-assessment of students on how well the course outcomes are met Exit survey on program outcomes conducted at the time of graduation to obtain self-assessment of the graduates on how well the program outcomes are met Feedback forms prepared by the faculty teaching the courses on course outcomes survey results Jury evaluations in key courses, including the capstone design and technical communication courses, that involve final project reports or presentations in front of faculty, industry guests, and fellow students	performance and expected qualifications of graduates Undergraduate Student Advisory Board that provides input on student satisfaction and needs Employer survey for measuring effectiveness of the program outcomes in the work force Alumni survey for measuring the impact of program outcomes in the performance of graduates Fundamentals of Engineering (FE) exam results on students who take it in their senior year. This is a nationalized exam, which gives comparisons of our students' sores against the national averages Presentations of co-ops and interns to faculty and fellow students on their experiences to get credit for their co-op and internship sessions. A jury evaluation system is practiced for the presentations Annual student satisfaction survey conducted annually to determine student satisfaction with the program Instructor's assessment of student performance in course outcomes via evaluation of key exams, projects and homework against the course outcomes Exit interviews (in addition to the exit surveys)
Mechanical Engineering Technology (MET)	ABET/TAC	Assess actual learning in selected courses, through a comprehensive graduation exam (MET, CIMT) and through an extensive portfolio review (CGT).	Student works (artifacts) in selected courses. Graduation examination results. Portfolio review results. Course evaluations. Continuing student satisfaction survey. Alumni survey. Employer survey.
Organizational Leadership and Supervision (OLS)	PUL	Assess actual learning in selected courses, including the required senior research project course	Graduating senior survey Passing rate on certificate program Retention rates, graduation rates, and number of degrees conferred Continuing students satisfaction Alumni satisfaction Employer satisfaction

Departmental and Program Annual Reports for 2008

The 2008 departmental and program assessment reports included in this school report represent the collected works of the following:

Architectural Technology (ART)
Biomedical Engineering (BME)
Construction Engineering Management Technology (CEMT)
Computer Graphics Technology (CGT)
Design and Communication Technology (DCT)
Electrical and Computer Engineering (ECE)
Freshman Engineering (FE)
Interior Design Technology (INTR)
Mechanical Engineering (ME)
Mechanical Engineering Technology (MET)
Organizational Leadership and Supervision (OLS)
Technical Communications (TCM)

ARCHITECTURAL TECHNOLOGY PROGRAM 2008 ASSESSMENT REPORT
Written by Emily McLaughlin
June 2008

Department Mission and Vision

The underlying objective of the Architectural Technology program is to create individuals with the necessary skills to enter the technology driven industries of the new millennium. Classroom knowledge will link applications to the field through multiple service-learning activities with community partners, and student learning will be regularly measured and assessed using PUL and ABET outcomes, as well as industry feedback.

Constituents

All full and part-time faculties are charged with assessing PUL and ABET program outcomes noted for a given course, reporting findings and recommending actions for course improvement. At least one course is identified to assess each PUL and ABET program outcome.

Early Career Objectives

The career objectives of our programs include producing graduates who will hold certain attributes, as measured through internship analysis, employer evaluation and alumni survey in the early years of their careers following graduation.

During the assessment process, where strengths and weaknesses are found as a result of our evaluation process, faculty members first discuss possible remedies. Faculties then implement changes as required; and, where appropriate seek additional input from industry. Changes then are evaluated using surveys, project reviews, tests, quizzes, homework assignments, papers, course and instructor evaluation and other tools to determine if further improvements and adjustments are required. In essence, a continual and closed loop system is employed to insure continuous improvement.

Program Learning Outcomes

ABET outcomes have been mapped these onto the IUPUI Principles of Undergraduate Learning to show that all PULs are thus assessed and have found patterns that indicate students are meeting or exceeding our expectations. We continue to refine the connection between work items and measurable outcomes to better substantiate this data.

During the assessment process, student work is examined as well as student self reports indicating how well they feel they have met indicators. Where strengths and weaknesses are found as a result of our evaluation process, faculty members first discuss possible remedies. Faculties then implement changes as required; and, where appropriate seek additional input from industry. Changes then are evaluated using surveys, project reviews, tests, quizzes, homework assignments, papers, course and instructor evaluation and other tools to determine if further improvements and adjustments are required. In essence, a continual and closed loop system is employed to insure continuous improvement.

As the BS degree is developed, continuous examination of both ABET outcomes and PUL's will be critical in order to meet future accreditation requirements.

DEPARTMENT OF BIOMEDICAL ENGINEERING 2007 ASSESSMENT REPORT NARRATIVE
Written May, 2008

The Biomedical Engineering (BME) Program was formally established on our campus with the initiation of the MS and PhD degrees in 1996. Our formal degree request to the Higher Education Commission for an undergraduate degree in BME was approved in the Spring of 2004. Our goal was to establish a new Department of Biomedical Engineering with 12 full time faculty members who will support a BS through PhD degree suite and whose research mission will primarily coincide with the current programs in the School of Medicine.

We are well on our way to meeting our goals of evolving the BME Program into a new Department of Biomedical Engineering and of offering a new BS level degree in Biomedical Engineering, in addition to the MS and joint PhD degrees. Our first class of undergraduates entered the senior year in August of 2007, and the first BS degrees were awarded in May of 2008 to an inaugural graduating class of seven students. The new BS degree is being developed in a way which will allow for eventual accreditation by the Accreditation Board for Engineering and Technology (ABET).

There are two categories for evaluation of our success. The first will be based on achieving our goals as a functioning department and the other will be the assessment of our new BS degree program.

Department Goals

BME currently has nine full time tenure/tenure track faculty members, including a senior faculty member filling the endowed chair funded by the Guidant Foundation and a new recruit who joined the faculty this summer. We seek to recruit 1 more tenure track faculty in the near term to strengthen the department's research potential and academic offerings. In addition, the department has one Lecturer responsible for undergraduate teaching and curriculum development, assessment, and student advising; and one Clinical Associate Professor, a researcher in residence from Medtronic, Inc. who oversees the BME Senior Design course as well as collaborating on faculty research projects.

Faculty recruitment has kept pace with the needs of the department in growing our undergraduate program and expanding our research potential. Our search has been guided in part by feedback from the internal BME departmental review of Fall 2005. In particular:

- The recommendation to *increase diversity hiring* (especially female) has led to the hiring of a new minority female faculty member and will continue to influence search and screen activities; and
- The recommendation to *infuse entrepreneurship into BME courses* influenced our choice to bring in an industry leader in device development to oversee the capstone design course, taught for the first time this past fall.

Assessment of the BSBME degree

Assessment of the success of the BSBME degree program follows the model developed by the School of Engineering and Technology's Assessment Committee for its Accreditation Board for Engineering and Technology (ABET) and North Central Association outcomes assessment

processes. As with the other engineering programs, assessment of the success of the program will have the following components: (1) assessment of student learning through evidence collected on the measurable learning outcomes developed to meet ABET Criteria and IUPUI's Principles of Undergraduate Learning, (2) an assessment of industry's satisfaction using both a survey form that is currently being developed and focus groups, (3) an assessment of alumni satisfaction through feedback using a process similar to that being developed for industry feedback, and (4) assessment of success of the program by tracking matriculation rates, graduation rates, successful job placement, graduate school admissions, and advancements.

Until our newly-minted graduates become established in the next stages of their educations or careers, our primary curriculum assessment tool is measurement and assessment of student learning (1), supplemented with both informal and survey-gathered student feedback on their experiences in our new BME courses. As a result of student performance and feedback, course content in sophomore- and junior-level courses has being assessed and streamlined to provide clearer and more cohesiveness development of ideas across courses in the curriculum. In particular, junior-level courses have been evolved to include more writing and open-ended problem solving. Course outcomes have now been specified for all of the junior and senior curriculum, and the courses approved by the school's Undergraduate Education Committee, and courses have been selected at each level for targeted assessment of ABET outcomes a-k.

The first BS degrees were awarded in May of 2008 to seven students; we have begun the process of tracking graduation rates and placement. Of our seven graduates, one has been accepted to the IU School of Medicine and will begin in the fall; two have been accepted to the Master's program in BME at IUPUI and will begin in the fall; two have found employment as biomedical engineers, one in an industrial and the other in a clinical setting; and two are continuing paid work in labs at IUPUI for the next year with an eye toward entering graduate programs in the fall of 2009. This represents an excellent placement rate for our program, a rate we anticipate maintaining as area employers become familiar with the quality of our graduates.

Retention rates in the undergraduate biomedical engineering program are also quite high. This May's graduates represent seven of sixteen students who completed the inaugural offering of the first sophomore-level BME class, BME 222. Of the remaining nine students in that class, two lack only one or two elective courses and are on-track to graduate in December 2008; one has satisfied most of the BME electives but has decided, as a result of his depth-area electives, to pursue a second major in Electrical and Computer Engineering; two students have repeated some courses and delayed others, and should be completing their requirements by May 2009. This represents a 75% graduation rate for the sixteen students who completed the first sophomore-level BME course in the fall of 2005. If we eliminate the two students who took BME 222 only on an exploratory basis without ever declaring a BME major, our graduation rate within four years of entering the BME program as a sophomore is closer to 85% for this inaugural class.

The new BME Department has also taken advantage of the internal review process directed by Vice Chancellor Banta's office during the Fall of 2005. The review process resulted in several recommendations which are being addressed. Motivated in part by the recommendation for improved allocation of space, last summer the department moved into a new, larger space, allowing for consolidation of departmental office, laboratory and teaching spaces in a centralized location. We are on track with establishing our department and implementing our new curriculum. We will continue to develop and implement appropriate assessment strategies and to close the loop on assessment now that the entire BME curriculum has been taught for the first time.

2007 Assessment Summary Report

Construction Engineering Management Technology
(formerly Department of Construction Technology)

Department of Electrical and Computer Engineering Technology

May, 2008

Summary
2007 was a significant year of change for the Construction Engineering Management Technology – CEMT program. Formerly a stand-alone department (Construction Technology – CNT), CEMT was redefined as a program and aligned within the Departments of Electrical and Computer Engineering Technology (ECET) and Mechanical Engineering Technology (MET). A new program director and two (2) new full time faculty members replaced outgoing faculty. Nevertheless the program faculty remained committed to the assessment outline and procedures as presented in the Program Self-Study Report for the Degree of Bachelor of Science in Construction Technology (2006) which was included by reference in the department's previous Assessment Summary Report of 2006.

With the program realignment, the educational objectives have been refined as follows:

- Demonstrate excellent technical capabilities in construction technology and related fields.
- Be responsible citizens.
- Continue professional advancement through life-long learning
- Apply sound methodology in related multidisciplinary fields and be sensitive to the health, safety and welfare of the public.
- Competently use mathematical, measurement, instrumentation testing techniques.
- Practice effective oral, written and visual communication skills
- Understand the environmental, ethical, diversity, cultural and contemporary aspects of their work
- Work effectively and collaboratively in architectural, engineering and construction industries

The program's mission statement, vision and constituencies – all previously detailed in the 2006 report – remain in place and continue to play an important role in ensuring the program's adherence to the ABET a–k program outcomes. With the new faculty came a renewed enthusiasm and emphasis for community service (outcomes "i" and "j"). An underutilized student group, the Society for Student Constructors (SSC), has been re-energized. It has participated in volunteer efforts at the national level and looks forward to increasing its community-minded efforts locally as well.

Facility adequacy has been enhanced with the addition of eight (8) new computer classrooms and two (2) new open computer labs in the newly remodeled lower level of the ET building.

CEMT Assessment Program: Self Evaluation
Given the administrative realignment and infusion of new faculty, this report offers an ideal opportunity to conduct a self-evaluation of the program assessment process that is currently in place within CEMT. The evaluation is based on a matrix[1] designed by Dr. G. Rogers, ABET's Asso-

[1] Rogers, G. M. (2007). *Self assessment: Quality assurance of program-level assessment of student learning.* Retrieved May 15, 2008 from http://www.abet.org/Linked%20Documents-UPDATE/Assessment/Revised%20self-assessment.pdf .

ciate Executive Director of Professional Services. (Table 1) It identifies the critical components necessary for a successful assessment program. By rating each component a reasonable appraisal of CEMT's assessment program is documented and opportunities for improvement are identified.

Based on the results of the matrix, our improvement goal is to strengthen our Program Objectives, Program Outcomes and Outcomes + Practices such that every component in these categories can be improved by at least one point. This will entail reviewing each course, confirming the associated ABET objectives and implementing a concerted data collection effort at the start of the Fall 2008 semester. In this way we can establish a firm foundation upon which to implement further improvements within the Assessment Processes and Evaluation categories.

	RATING
0	Not in place
1	Beginning stage of development
2	Beginning stage of implementation
3	In place & implemented
4	Implemented & evaluated for effectiveness
5	Implemented, evaluated and 1 cycle of improvement

Table 1.

Stakeholder Involvement	***Rating***	***Program Objectives***	***Rating***	***Program Outcomes***	***Rating***	***Outcomes + Practices***	***Rating***	***Assessment Processes***	***Rating***	***Evaluation***	***Rating***
Stakeholders identified	**5**	Objectives defined	**3**	Outcomes defined	**3**	Outcomes mapped to curriculum	**2**	Assessment ongoing	**2**	Assessment data review	**1**
Primary stakeholders involved in identifying objectives	**5**	Objectives publicly documented	**2**	Number of outcomes are manageable	**3**	Practices systematically evaluated using outcome data	**1**	Multiple methods used	**2**	Evaluation done by change agents	**1**
Primary stakeholders involved in evaluating objectives	**5**	Number of objectives are manageable	**2**	Outcomes are publicly documented	**1**	Education practices are modified per assessment data	**0**	Indirect & direct measures of student learning are used	**1**	Evaluation of data linked to curricular practices	**1**
Sustained partnerships w/ stakeholders established	**5**	Objectives aligned with mission statement	**3**	Outcomes linked to objectives	**1**			Assessment processes reviewed for effectiveness	**2**	Evaluation leads to decisions / action	**1**
		Objectives periodically assessed	**2**	Outcomes defined by measurable performance indicators	**1**			Assessment methods modified based on evaluation	**0**		

Goals for 2008

In the 2006 Program Self Study Report, an assessment program was described in detail which provides an excellent methodology with which to assess student performance. The ABET a-k outcomes were distilled into sub-outcomes which assist the faculty with its assessment duties. The ABET a-k outcomes were additionally mapped to the Principals of Undergraduate Learning (PUL) as recommended by the IUPUI administration. Every syllabus of every course within the CEMT program continues to reference the specific ABET a-k and PUL objectives to ensure students are aware of their importance in the curriculum.

Due to the change in faculty and program realignment, some courses incurred significant revision making references to baseline criteria unusable. The goals of the program for 2008 include:

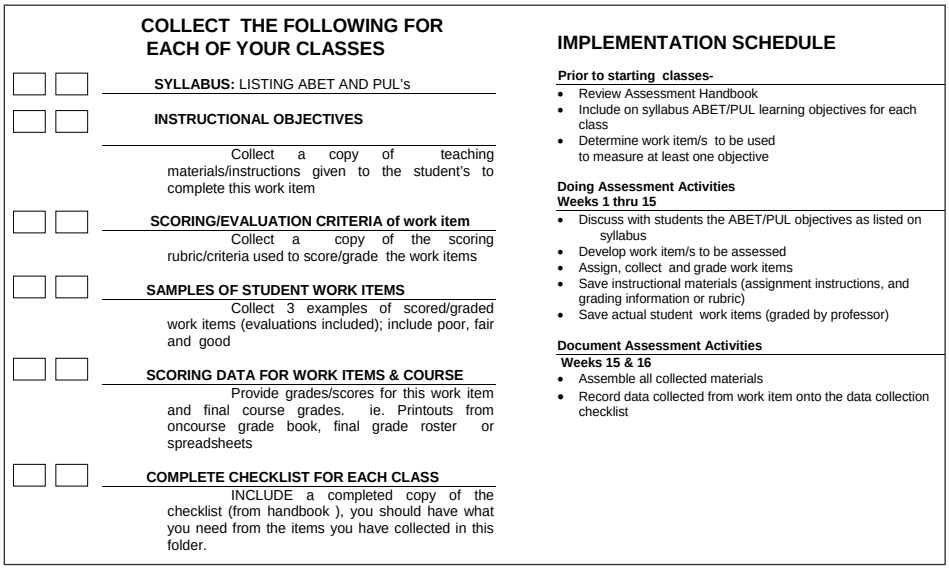
1. Fully implement the Assessment Policy and Implementation Expectations for Faculty as detailed in the 2007 Assessment Summary and as included herein (Figure 1) beginning with the Fall 2008 semester.

2. Review the revised courses to re-allocate the ABET a-k outcomes to ensure there is an accurate correlation between course content and outcome assignment.

3. Recommit the program to adherence to those assessment tools at the program level which are most efficient in providing continuous evaluation and improvement including[2]:
    a. Assessment checklist and student work items
    b. Student course evaluations
    c. Student course learning outcomes surveys
    d. Faculty course outcomes surveys
    e. Course assessment reflection

4. Implement specific improvements to the assessment program as identified by the Self Evaluation Matrix (Table 1) and as described in detail in the preceding section.

Figure 1.



[2] Department of Construction Technology. (2006). *Program self-study report for the degree of bachelor science in Construction Technology*. Unpublished report. Page B.21.

2008 Assessment Report
for the
Computer Graphics Technology Program
Department of Design and Communication Technology

1. Vision of the Department of Design and Communication Technology (DCT)

The Purdue University Computer Graphics Technology (CGT) program at the IUPUI campus will be recognized as the preeminent digital and visual communications program internationally. As the world leader in computer graphics, CGT-IUPUI will be acknowledged for the excellence it displays in its academic outcomes through learning, discovery, engagement, and internship opportunities worldwide. CGT-IUPUI will set the standard for among its peers in terms of the values it displays in terms of leadership, partnership, service, and innovation.

2. Mission of the Department of Design and Communication Technology

The principle mission of the Purdue University Computer Graphics Technology at IUPUI is to educate its students to be the world's best practitioners, technicians, managers, directors, and innovators in digital and visual communications. The Department will be recognized as the world's leader through its diversity of faculty and staff, students, its innovations in education and technology, and its commitment to excellence in learning, discovery, and engagement outcomes and activities.

3. Constituents

1. CGT Faculty
2. CGT Students
3. CGT Alumni
4. Potential Employers of CGT Students
5. National and International Professional Societies
6. The School and University

4. Early Career Objectives

Consistent with the criteria set by the Accreditation Board for Engineering and Technology (ABET), the Program Educational Objectives of the Computer Graphics Technology are, "*To produce graduates who, during the first few years of professional practice, will*:

1. Show their ability to solve problems related to the workplace through their application of excellent technical capabilities in computer graphics technology and related supporting fields.
2. Be responsible citizens in the workplace through their demonstrated ethical and professional conduct and appreciation for diversity in its various forms.
3. Continue their professional advancement through life-long learning opportunities, in-service training and engagement with professional organizations.
4. Practice effective oral and written communication skills.

5. Show their ability to address diverse environmental, ethical, diversity, cultural, and contemporary aspects of their work
6. Work collaboratively and effectively in engineering and manufacturing industries as a liaison between professional engineers and manufacturing personnel
7. Have the ability to function both as an individual, and within the dynamics of a group environment, in the workplace

5. Program Learning Outcomes

The CGT program at IUPUI has established 9 outcomes to ensure its graduates are equipped to accomplish the expected objectives stipulated by ABET within 5 years of graduation. The ABET and CGT outcomes require each student upon graduation to show the competencies detailed below:

ABET Outcomes (a-i)

a. An ability to apply knowledge of computing and mathematics appropriate to the discipline

b. An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution

c. An ability to design, implement, and evaluate computer-based systems, processes, components, or programs to meet desired needs

d. An ability to function effectively on teams to accomplish a common goal

e. An understanding of professional, ethical, legal, security and social issues and responsibilities

f. An ability to communicate effectively with a range of audiences

g. An ability to analyze the local and global impact of computing on individuals, organizations, and society

h. Recognition of the need for and an ability to engage in continuing professional development

i. An ability to use current techniques, skills, and tools necessary for computing practice.

CGT Outcomes (1-9)

1. Be able to demonstrate a knowledge of computing and mathematics required in the student's specific area of computer graphics

2. Be able to identify, define, analyze, and solve specific computing problems by stating the requirements appropriate to its solution

3. An ability to design, implement, and evaluate diverse computer systems and processes to meet desired outcomes

4. Demonstrate the ability to work in a team environment to accomplish common objectives

5. Be able to explain diverse opinions in regards to professional, ethical, legal, and social issues in a global perspective

6. Demonstrate the ability to effectively communicate effectively with a wide range of audiences

7. Demonstrate an ability to analyze and explain the impact of computing on individuals, organizations, and societies in both a domestic and international environment

8. Express reasons why there is a constant need to engage in continuing professional development

9. Demonstrate the ability to use current techniques, theories, and tools necessary for the development of visual communications in the student's area of expertise

6. Process to Assess Program Learning Outcomes

Program Educational Objectives are assessed concurrently with Program Education Outcomes utilizing various instruments listed in the previous section. Additionally, Program Learning Outcomes are mapped to show the relationship between each course and program outcomes.

This mapping process also helps ensure that the following aspects of the curriculum are supported:

a. Identifies any course where outcomes may be lacking, or further support could be added

b. Identifies any overlap of outcomes in multiple courses that can be eliminated or revised

c. Gives a preliminary grasp if outcomes and objectives are being matched appropriately through CGT or supporting courses offered

d. Provides a visual representation of the curriculum which easily shows the relationship of outcomes to general topic areas

7. Early Career Objectives

Consistent with the criteria set by the Accreditation Board for Engineering and Technology (ABET), the Program Educational Objectives of the Computer Graphics Technology program are, "*To produce graduates who, during the first few years of professional practice, will*:

1. Show their ability to solve problems related to the workplace through their application of excellent technical capabilities in computer graphics technology and related supporting fields.
2. Be responsible citizens in the workplace through their demonstrated ethical and professional conduct and appreciation for diversity in its various forms.
3. Continue their professional advancement through life-long learning opportunities, in-service training and engagement with professional organizations.
4. Practice effective oral and written communication skills.

5. Show their ability to address diverse environmental, ethical, diversity, cultural, and contemporary aspects of their work
6. Work collaboratively and effectively in engineering and manufacturing industries as a liaison between professional engineers and manufacturing personnel
7. Have the ability to function both as an individual, and within the dynamics of a group environment, in the workplace

8. Assessment

Program Educational Objectives are assessed concurrently with Program Education Outcomes utilizing various instruments including:

1. Student Instructor Evaluations which also include questions on course outcomes submitted at the end of each semester
2. Interviews conducted with students during their senior design projects (CGT 411, 415, & 416)
3. Discussions with faculty advisors during student chapter meetings of professional organizations, i.e. SIGGRAPH
4. Alumni survey for measuring the impact of program outcomes in the performance of graduates (conducted by the Office of the Dean)
5. Employer survey for measuring effectiveness of the program outcomes in the work force (conducted by the Office of the Dean)
6. Feedback from potential employers during internships, etc.
7. Instructor's assessment of student performance in regards to course outcomes via evaluation of specific problems on exams, projects, lab assignments (if applicable), and homework against the course outcomes

Responsibilities and Frequency for Assessment

Assessment Tool	Responsible Party	Frequency
Student Instructor Evaluation	Delivered by the School	Every semester (may not be given in some cases during summer sessions due to reduced staff)
Interviews in CGT 411, 415, and 416	Course Coordinator or Instructor	Every semester course is offered
Discussions from Professional Organization meetings	Faculty advisor assigned to oversee student chapters of professional organizations	Every meeting with chapter officers and student members
Alumni Survey	Office of the Dean	Once per year
Employer Survey	Office of the Dean	Once every two years
Potential employers	Department	Ongoing through internships
Instructor's Assessment	Course instructor	In every course

Involvement of Constituencies in Assessment

Primary Constituencies	Means of Feedback
CGT Faculty	Chair' yearly interview; Dean's yearly interview (if appropriate); Results of "Student Instructor Evaluations"; Semester Faculty Retreat; Monthly Faculty Meeting
CGT Students	Meetings with faculty and Chair during weekly Office Hours; Participation in "Student Instructor Evaluations"; Prof. Organization Student Chapters
CGT Alumni	Alumni surveys conducted through Dean's Office
Potential Employers	Ongoing meetings with employers in regards to internships; Participation as speakers in courses, and as clients on Senior design projects; Employer survey conducted through Dean's Office
National and International Professional Societies	Participation as officers and members of national and international professional organizations
School and University Senate Committees	Review of all curriculum and assessment issues at the department and School levels; Review of all curriculum issues at university level; PRAC support for grants and assessment report reviews at the university level

2008 Assessment Report
for the
Computer Graphics Technology Program
Department of Design and Communication Technology

1. Vision of the Department of Design and Communication Technology (DCT)

The Purdue University Computer Graphics Technology (CGT) program at the IUPUI campus will be recognized as the preeminent digital and visual communications program internationally. As the world leader in computer graphics, CGT-IUPUI will be acknowledged for the excellence it displays in its academic outcomes through learning, discovery, engagement, and internship opportunities worldwide. CGT-IUPUI will set the standard for among its peers in terms of the values it displays in terms of leadership, partnership, service, and innovation.

2. Mission of the Department of Design and Communication Technology

The principle mission of the Purdue University Computer Graphics Technology at IUPUI is to educate its students to be the world's best practitioners, technicians, managers, directors, and innovators in digital and visual communications. The Department will be recognized as the world's leader through its diversity of faculty and staff, students, its innovations in education and technology, and its commitment to excellence in learning, discovery, and engagement outcomes and activities.

3. Constituents

1. CGT Faculty
2. CGT Students
3. CGT Alumni
4. Potential Employers of CGT Students
5. National and International Professional Societies
6. The School and University

4. Early Career Objectives

Consistent with the criteria set by the Accreditation Board for Engineering and Technology (ABET), the Program Educational Objectives of the Computer Graphics Technology are, "*To produce graduates who, during the first few years of professional practice, will*:

1. Show their ability to solve problems related to the workplace through their application of excellent technical capabilities in computer graphics technology and related supporting fields.
2. Be responsible citizens in the workplace through their demonstrated ethical and professional conduct and appreciation for diversity in its various forms.
3. Continue their professional advancement through life-long learning opportunities, in-service training and engagement with professional organizations.
4. Practice effective oral and written communication skills.

5. Show their ability to address diverse environmental, ethical, diversity, cultural, and contemporary aspects of their work
6. Work collaboratively and effectively in engineering and manufacturing industries as a liaison between professional engineers and manufacturing personnel
7. Have the ability to function both as an individual, and within the dynamics of a group environment, in the workplace

5. Program Learning Outcomes

The CGT program at IUPUI has established 9 outcomes to ensure its graduates are equipped to accomplish the expected objectives stipulated by ABET within 5 years of graduation. The ABET and CGT outcomes require each student upon graduation to show the competencies detailed below:

ABET Outcomes (a-i)

a. An ability to apply knowledge of computing and mathematics appropriate to the discipline

b. An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution

c. An ability to design, implement, and evaluate computer-based systems, processes, components, or programs to meet desired needs

d. An ability to function effectively on teams to accomplish a common goal

e. An understanding of professional, ethical, legal, security and social issues and responsibilities

f. An ability to communicate effectively with a range of audiences

g. An ability to analyze the local and global impact of computing on individuals, organizations, and society

h. Recognition of the need for and an ability to engage in continuing professional development

i. An ability to use current techniques, skills, and tools necessary for computing practice.

CGT Outcomes (1-9)

1. Be able to demonstrate a knowledge of computing and mathematics required in the student's specific area of computer graphics

2. Be able to identify, define, analyze, and solve specific computing problems by stating the requirements appropriate to its solution

3. An ability to design, implement, and evaluate diverse computer systems and processes to meet desired outcomes

4. Demonstrate the ability to work in a team environment to accomplish common objectives

5. Be able to explain diverse opinions in regards to professional, ethical, legal, and social issues in a global perspective

6. Demonstrate the ability to effectively communicate effectively with a wide range of audiences

7. Demonstrate an ability to analyze and explain the impact of computing on individuals, organizations, and societies in both a domestic and international environment

8. Express reasons why there is a constant need to engage in continuing professional development

9. Demonstrate the ability to use current techniques, theories, and tools necessary for the development of visual communications in the student's area of expertise

6. Process to Assess Program Learning Outcomes

Program Educational Objectives are assessed concurrently with Program Education Outcomes utilizing various instruments listed in the previous section. Additionally, Program Learning Outcomes are mapped to show the relationship between each course and program outcomes.

This mapping process also helps ensure that the following aspects of the curriculum are supported:

a. Identifies any course where outcomes may be lacking, or further support could be added

b. Identifies any overlap of outcomes in multiple courses that can be eliminated or revised

c. Gives a preliminary grasp if outcomes and objectives are being matched appropriately through CGT or supporting courses offered

d. Provides a visual representation of the curriculum which easily shows the relationship of outcomes to general topic areas

7. Early Career Objectives

Consistent with the criteria set by the Accreditation Board for Engineering and Technology (ABET), the Program Educational Objectives of the Computer Graphics Technology program are, "*To produce graduates who, during the first few years of professional practice, will*:

1. Show their ability to solve problems related to the workplace through their application of excellent technical capabilities in computer graphics technology and related supporting fields.
2. Be responsible citizens in the workplace through their demonstrated ethical and professional conduct and appreciation for diversity in its various forms.
3. Continue their professional advancement through life-long learning opportunities, in-service training and engagement with professional organizations.

4. Practice effective oral and written communication skills.
5. Show their ability to address diverse environmental, ethical, diversity, cultural, and contemporary aspects of their work
6. Work collaboratively and effectively in engineering and manufacturing industries as a liaison between professional engineers and manufacturing personnel
7. Have the ability to function both as an individual, and within the dynamics of a group environment, in the workplace

8. Assessment

Program Educational Objectives are assessed concurrently with Program Education Outcomes utilizing various instruments including:

1. Student Instructor Evaluations which also include questions on course outcomes submitted at the end of each semester
2. Interviews conducted with students during their senior design projects (CGT 411, 415, & 416)
3. Discussions with faculty advisors during student chapter meetings of professional organizations, i.e. SIGGRAPH
4. Alumni survey for measuring the impact of program outcomes in the performance of graduates (conducted by the Office of the Dean)
5. Employer survey for measuring effectiveness of the program outcomes in the work force (conducted by the Office of the Dean)
6. Feedback from potential employers during internships, etc.
7. Instructor's assessment of student performance in regards to course outcomes via evaluation of specific problems on exams, projects, lab assignments (if applicable), and homework against the course outcomes

Responsibilities and Frequency for Assessment

Assessment Tool	Responsible Party	Frequency
Student Instructor Evaluation	Delivered by the School	Every semester (may not be given in some cases during summer sessions due to reduced staff)
Interviews in CGT 411, 415, and 416	Course Coordinator or Instructor	Every semester course is offered
Discussions from Professional Organization meetings	Faculty advisor assigned to oversee student chapters of professional organizations	Every meeting with chapter officers and student members
Alumni Survey	Office of the Dean	Once per year
Employer Survey	Office of the Dean	Once every two years
Potential employers	Department	Ongoing through internships
Instructor's Assessment	Course instructor	In every course

Involvement of Constituencies in Assessment

Primary Constituencies	Means of Feedback
CGT Faculty	Chair' yearly interview; Dean's yearly interview (if appropriate); Results of "Student Instructor Evaluations"; Semester Faculty Retreat; Monthly Faculty Meeting
CGT Students	Meetings with faculty and Chair during weekly Office Hours; Participation in "Student Instructor Evaluations"; Prof. Organization Student Chapters
CGT Alumni	Alumni surveys conducted through Dean's Office
Potential Employers	Ongoing meetings with employers in regards to internships; Participation as speakers in courses, and as clients on Senior design projects; Employer survey conducted through Dean's Office
National and International Professional Societies	Participation as officers and members of national and international professional organizations
School and University Senate Committees	Review of all curriculum and assessment issues at the department and School levels; Review of all curriculum issues at university level; PRAC support for grants and assessment report reviews at the university level

CGT BS Program Outcomes by Course

	CGT Program Outcomes (ABET "a-i")								
Course	**a**	**b**	**c**	**d**	**e**	**f**	**g**	**h**	**i**
CGT CORE & Advanced:									
CGT 110*	x	x		x					
CGT 111		x	x			x		x	x
CGT 112						x		x	x
CGT 116	x	x	x					x	x
CGT 117		x	x					x	x
CGT 211		x	x			x			x
CGT 216		x	x			x			x
CGT 221		x		x		x			x
CGT 241	x	x	x						x
CGT 251		x	x			x			x
CGT 299	**Independent Study only – outcomes therefore vary.**								
CGT 321				x		x			x
CGT 340		x							x
CGT 351	x	x	x				x		x
CGT 356	x	x	x				x		x
CGT 411		x	x	x	x	x	x	x	x
CGT 415		x	x		x			x	x
CGT 416		x	x		x			x	x
CGT 442		x	x			x			x
CGT 456	x	x	x			x			x
CGT 499	**Independent Study only – outcomes therefore vary.**								
General Education:									
BUS-L 203	x				x				
COMM-R 110				x		x			
ENG-W 131						x			
MATH 153 & 154	x								
PSY-P 104					x				
Science Elective	x				x				
SOC 317					x		x		
Technical Selectives:									
IET 104	x				x		x		
IET 150	x				x		x		
IET 350	x				x		x		
TCM 220						x			
TCM 340						x			
TCM 370	x					x			
CIT 140	x		x						x
CIT 262 or 270	x		x						x
CIT 288 (or 214)	x		x						x
CSCI N355	x		x						x
Technical Electives:	x		x						x
Liberal Arts Electives:				x	x	x		x	
Humanities /Social Science Electives:				x	x	x		x	

***NOTE:** CGT 110 is managed by the MET program and the "End of Semester Reflections" is submitted in their annual assessment report.

End of Semester Reflection

Course No. CGT 111 **Reflection by: Prof. Dan Baldwin** **Semester: Spring 2008**

Instructions: Please be specific in regards to any changes you believe need to be made to this course and how the course objectives were affected.

1. Do any course objectives need to be deleted, added, or revised in any manner? Were there any course objectives, or other course materials, that a significant number of students did not adequately comprehend?

   Response: YES. This course was changed to reflect more character design.

2. Comment on course assessment assignments where students did not meet your expectations.

   Response: YES

3. Was the textbook (or course notes) adequate to meet the goals of the course?

   Response: YES. Additional resources were used from the Internet to support the readings.

4. Does the course sufficiently challenge, or overly challenge, our students?

   Response: YES, it is at the correct educational at this time.

5. Comment on anything new tried in the course and its results(s) and indicate you recommendations as to whether or not this implementation should be continued, i.e. new course materials or teaching techniques.

   Response: No comment.

6. Did the laboratory exercises support course objectives and were the students sufficiently engaged?

   Response: YES

7. Are there laboratory assignments that need rewriting to remove ambiguities, or updated?

   Response: Not at this time.

8. Does the laboratory equipment or software used for the course need to be replaced or updated?

   Response: YES. Software is outdated now and will be replaced in Fall 2008.

Computer Graphics Technology Program
End of Semester Reflection

Course No. CGT 112 **Reflection by: Dr. Mark Bannatyne** **Semester: Spring 2008**

Instructions: Please be specific in regards to any changes you believe need to be made to this course and how the course objectives were affected.

1. Do any course objectives need to be deleted, added, or revised in any manner? Were there any course objectives, or other course materials, that a significant number of students did not adequately comprehend?

   Response: No, as this was done several semesters ago.

2. Comment on course assessment assignments where students did not meet your expectations.

   Response: YES

3. Was the textbook (or course notes) adequate to meet the goals of the course?

   Response: YES

4. Does the course sufficiently challenge, or overly challenge, our students?

   Response: NO

5. Comment on anything new tried in the course and its results(s) and indicate you recommendations as to whether or not this implementation should be continued, i.e. new course materials or teaching techniques.

   Response: Internet resources were added to this class.

6. Did the laboratory exercises support course objectives and were the students sufficiently engaged?

   Response: YES. New exercises were added this semester.

7. Are there laboratory assignments that need rewriting to remove ambiguities, or updated?

   Response: No. (See comment in #7.)

8. Does the laboratory equipment or software used for the course need to be replaced or updated?

   Response: N/A. This is a sketching class and so no equipment or software is required.

Computer Graphics Technology Program
End of Semester Reflection

Course No. CGT 116 **Reflection by: Dr. Mark Bannatyne** **Semester: Spring 2008**

Instructions: Please be specific in regards to any changes you believe need to be made to this course and how the course objectives were affected.

1. Do any course objectives need to be deleted, added, or revised in any manner? Were there any course objectives, or other course materials, that a significant number of students did not adequately comprehend?

   Response: No

2. Comment on course assessment assignments where students did not meet your expectations.

   Response: YES. Most students are able to meet expectations if they attend regularly.

3. Was the textbook (or course notes) adequate to meet the goals of the course?

   Response: YES. Newest edition of textbook was employed.

4. Does the course sufficiently challenge, or overly challenge, our students?

   Response: YES. The academic challenge of this class is adequate.

5. Comment on anything new tried in the course and its results(s) and indicate you recommendations as to whether or not this implementation should be continued, i.e. new course materials or teaching techniques.

   Response: Oncourse was used to deliver examinations.

6. Did the laboratory exercises support course objectives and were the students sufficiently engaged?

   Response: Yes

7. Are there laboratory assignments that need rewriting to remove ambiguities, or updated?

   Response: No, all assignments reflect current practices in industry.

8. Does the laboratory equipment or software used for the course need to be replaced or updated?

   Response: YES. The software is outdated and scheduled to be updated in the Fall 2008 semester.

Computer Graphics Technology Program
End of Semester Reflection

Course No. CGT 117 **Reflection by: Dr. Mark Bannatyne** **Semester: Spring 2008**

Instructions: Please be specific in regards to any changes you believe need to be made to this course and how the course objectives were affected.

1. Do any course objectives need to be deleted, added, or revised in any manner? Were there any course objectives, or other course materials, that a significant number of students did not adequately comprehend?

   Response: No. At this time all objectives are adequate.

2. Comment on course assessment assignments where students did not meet your expectations.

   Response: YES

3. Was the textbook (or course notes) adequate to meet the goals of the course?

   Response: YES

4. Does the course sufficiently challenge, or overly challenge, our students?

   Response: YES

5. Comment on anything new tried in the course and its results(s) and indicate you recommendations as to whether or not this implementation should be continued, i.e. new course materials or teaching techniques.

   Response: No comment.

6. Did the laboratory exercises support course objectives and were the students sufficiently engaged?

   Response: YES

7. Are there laboratory assignments that need rewriting to remove ambiguities, or updated?

   Response: NO

8. Does the laboratory equipment or software used for the course need to be replaced or updated?

   Response: YES. Software is outdated and scheduled for replacement in Fall 2008 semester.

Computer Graphics Technology Program
End of Semester Reflection

Course No. CGT 211 **Reflection by: M. Flaherty** **Semester: Spring 2008**

Instructions: Please be specific in regards to any changes you believe need to be made to this course and how the course objectives were affected.

1. Do any course objectives need to be deleted, added, or revised in any manner? Were there any course objectives, or other course materials, that a significant number of students did not adequately comprehend?

   Response: No. Current objectives reflect industry needs.

2. Comment on course assessment assignments where students did not meet your expectations.

   Response: Students who did not meet expectations were primarily those who did not turn in assignments on time, or failed to attend regularly.

3. Was the textbook (or course notes) adequate to meet the goals of the course?

   Response: Yes. Several textbooks are used in this class.

4. Does the course sufficiently challenge, or overly challenge, our students?

   Response: YES. The academic and technological challenge is appropriate.

5. Comment on anything new tried in the course and its results(s) and indicate you recommendations as to whether or not this implementation should be continued, i.e. new course materials or teaching techniques.

   Response: A section of this course was offered for the first time as an 8-week block to Interior Design and Architectural Technology students.

6. Did the laboratory exercises support course objectives and were the students sufficiently engaged?

   Response: Yes. Course has many assignments to keep students engaged.

7. Are there laboratory assignments that need rewriting to remove ambiguities, or updated?

   Response: No

8. Does the laboratory equipment or software used for the course need to be replaced or updated?

   Response: YES. Software is scheduled to be updated in fall 2008.

Computer Graphics Technology Program
End of Semester Reflection

Course No. CGT 216 **Reflection by: M. Flaherty** **Semester: Spring 2008**

Instructions: Please be specific in regards to any changes you believe need to be made to this course and how the course objectives were affected.

1. Do any course objectives need to be deleted, added, or revised in any manner? Were there any course objectives, or other course materials, that a significant number of students did not adequately comprehend?

   Response: No. Current objectives reflect industry needs.

2. Comment on course assessment assignments where students did not meet your expectations.

   Response: Students who did not meet expectations were primarily those who did not turn in assignments on time, or failed to attend regularly.

3. Was the textbook (or course notes) adequate to meet the goals of the course?

   Response: Partly. Present textbook reflects use of older version of software used at present in class.

4. Does the course sufficiently challenge, or overly challenge, our students?

   Response: YES. The academic and technological challenge is appropriate.

5. Comment on anything new tried in the course and its results(s) and indicate you recommendations as to whether or not this implementation should be continued, i.e. new course materials or teaching techniques.

   Response: No comment.

6. Did the laboratory exercises support course objectives and were the students sufficiently engaged?

   Response: Yes. Course has many assignments to keep students engaged.

7. Are there laboratory assignments that need rewriting to remove ambiguities, or updated?

   Response: No

8. Does the laboratory equipment or software used for the course need to be replaced or updated?

   Response: YES. Software is scheduled to be updated in fall 2008.

Computer Graphics Technology Program
End of Semester Reflection

Course No. CGT 221 **Reflection by: Zeb Wood** **Semester: Spring 2008**

Instructions: Please be specific in regards to any changes you believe need to be made to this course and how the course objectives were affected.

1. Do any course objectives need to be deleted, added, or revised in any manner? Were there any course objectives, or other course materials, that a significant number of students did not adequately comprehend?

   Response: No. All objectives are appropriate at this time.

2. Comment on course assessment assignments where students did not meet your expectations.

   Response: Most students require more computer literacy to have success in this course.

3. Was the textbook (or course notes) adequate to meet the goals of the course?

   Response: Yes, text was very good!

4. Does the course sufficiently challenge, or overly challenge, our students?

   Response: Yes, more than average due to a lack of technical skills.

5. Comment on anything new tried in the course and its results(s) and indicate you recommendations as to whether or not this implementation should be continued, i.e. new course materials or teaching techniques.

   Response: Yes, I implemented MentalRay into the rendering portion of the course.

6. Did the laboratory exercises support course objectives and were the students sufficiently engaged?

   Response: Yes

7. Are there laboratory assignments that need rewriting to remove ambiguities, or updated?

   Response: No, all assignments are appropriate at this time.

8. Does the laboratory equipment or software used for the course need to be replaced or updated?

   Response: Yes, software is out of date and scheduled for update in Fall 2008.

Computer Graphics Technology Program
End of Semester Reflection

Course No. CGT 241 **Reflection by: Zeb Wood** **Semester: Spring 2008**

Instructions: Please be specific in regards to any changes you believe need to be made to this course and how the course objectives were affected.

1. Do any course objectives need to be deleted, added, or revised in any manner? Were there any course objectives, or other course materials, that a significant number of students did not adequately comprehend?

   Response: No. All objectives are appropriate at this time.

2. Comment on course assessment assignments where students did not meet your expectations.

   Response: As this is the first course in animation, most students require a lot of lab time to get the basics in this course. Lab time = Skill level

3. Was the textbook (or course notes) adequate to meet the goals of the course?

   Response: Yes, text was very good and up-to-date!

4. Does the course sufficiently challenge, or overly challenge, our students?

   Response: Yes. (Please see my remarks in #2.)

5. Comment on anything new tried in the course and its results(s) and indicate you recommendations as to whether or not this implementation should be continued, i.e. new course materials or teaching techniques.

   Response: No comment.

6. Did the laboratory exercises support course objectives and were the students sufficiently engaged?

   Response: Yes

7. Are there laboratory assignments that need rewriting to remove ambiguities, or updated?

   Response: No, all assignments are appropriate at this time.

8. Does the laboratory equipment or software used for the course need to be replaced or updated?

   Response: Yes, software is out of date and scheduled for update in Fall 2008.

Computer Graphics Technology Program
End of Semester Reflection

Course No. CGT 251 **Reflection by: Dr. Mark Bannatyne** **Semester: Spring 2008**

Instructions: Please be specific in regards to any changes you believe need to be made to this course and how the course objectives were affected.

1. Do any course objectives need to be deleted, added, or revised in any manner? Were there any course objectives, or other course materials, that a significant number of students did not adequately comprehend?

   Response: No

2. Comment on course assessment assignments where students did not meet your expectations.

   Response: Yes. Most students do well in this class if they attend regularly.

3. Was the textbook (or course notes) adequate to meet the goals of the course?

   Response: This is an application-based course that reflects previous instruction. Therefore, no textbook is used in this course.

4. Does the course sufficiently challenge, or overly challenge, our students?

   Response: Yes. This class has many major assignments and very strict deadlines that reflect industry standards of the workplace.

5. Comment on anything new tried in the course and its results(s) and indicate you recommendations as to whether or not this implementation should be continued, i.e. new course materials or teaching techniques.

   Response: No comment.

6. Did the laboratory exercises support course objectives and were the students sufficiently engaged?

   Response: Yes. Students are busy ensuring industry standards are being used.

7. Are there laboratory assignments that need rewriting to remove ambiguities, or updated?

   Response: No

8. Does the laboratory equipment or software used for the course need to be replaced or updated?

   Response: Yes. Software is old and scheduled for replacement in Fall 2008.

Computer Graphics Technology Program
End of Semester Reflection

Course No. CGT 299 **Reflection by: Dr. Mark Bannatyne** **Semester: Spring 2008**

Instructions: Please be specific in regards to any changes you believe need to be made to this course and how the course objectives were affected.

1. Do any course objectives need to be deleted, added, or revised in any manner? Were there any course objectives, or other course materials, that a significant number of students did not adequately comprehend?

   Response: This course is used for independent study needs and therefore objectives vary upon its application each semester.

2. Comment on course assessment assignments where students did not meet your expectations.

   Response: Vary according to use of course.

3. Was the textbook (or course notes) adequate to meet the goals of the course?

   Response: Textbooks may or may not be used depending on topic taught.

4. Does the course sufficiently challenge, or overly challenge, our students?

   Response: This dependent on the topic being taught, and assignments.

5. Comment on anything new tried in the course and its results(s) and indicate you recommendations as to whether or not this implementation should be continued, i.e. new course materials or teaching techniques.

   Response: This depends on the topics being delivered.

6. Did the laboratory exercises support course objectives and were the students sufficiently engaged?

   Response: This depends on the topics being delivered.

7. Are there laboratory assignments that need rewriting to remove ambiguities, or updated?

   Response: This depends on the topics being delivered.

8. Does the laboratory equipment or software used for the course need to be replaced or updated?

   Response: Software varies according to the subject being addressed.

Computer Graphics Technology Program
End of Semester Reflection

Course No. CGT 321 **Reflection by: Prof. K. Marshall** **Semester: Spring 2008**

Instructions: Please be specific in regards to any changes you believe need to be made to this course and how the course objectives were affected.

1. Do any course objectives need to be deleted, added, or revised in any manner? Were there any course objectives, or other course materials, that a significant number of students did not adequately comprehend?

   Response: No, all objectives were reviewed and revised in past semesters.

2. Comment on course assessment assignments where students did not meet your expectations.

   Response: This course is for Interior Design students who seem to be technically challenged. They need more technical preparation for this course.

3. Was the textbook (or course notes) adequate to meet the goals of the course?

   Response: Yes. The textbook is the same one used in CGT 340.

4. Does the course sufficiently challenge, or overly challenge, our students?

   Response: Yes. Most students struggle through this class due to the technical nature of the topic and a lack of adequate computer skills.

5. Comment on anything new tried in the course and its results(s) and indicate you recommendations as to whether or not this implementation should be continued, i.e. new course materials or teaching techniques.

   Response: No comment. other than teaching pace was slowed down a bit.

6. Did the laboratory exercises support course objectives and were the students sufficiently engaged?

   Response: Yes

7. Are there laboratory assignments that need rewriting to remove ambiguities, or updated?

   Response: No

8. Does the laboratory equipment or software used for the course need to be replaced or updated?

   Response: Yes. Software will be replaced with newer version in fall 2008.

Computer Graphics Technology Program
End of Semester Reflection

Course No. CGT 340 **Reflection by: Prof. K. Marshall** **Semester: Spring 2008**

Instructions: Please be specific in regards to any changes you believe need to be made to this course and how the course objectives were affected.

1. Do any course objectives need to be deleted, added, or revised in any manner? Were there any course objectives, or other course materials, that a significant number of students did not adequately comprehend?

   Response: No

2. Comment on course assessment assignments where students did not meet your expectations.

   Response: No comment.

3. Was the textbook (or course notes) adequate to meet the goals of the course?

   Response: Yes

4. Does the course sufficiently challenge, or overly challenge, our students?

   Response: No. This is a required class for most CGT students who have good computer skills.

5. Comment on anything new tried in the course and its results(s) and indicate you recommendations as to whether or not this implementation should be continued, i.e. new course materials or teaching techniques.

   Response: No comment.

6. Did the laboratory exercises support course objectives and were the students sufficiently engaged?

   Response: Yes. This is a busy class will much to learn.

7. Are there laboratory assignments that need rewriting to remove ambiguities, or updated?

   Response: No

8. Does the laboratory equipment or software used for the course need to be replaced or updated?

   Response: Yes. The software will be replaced in the Fall 2008 semester.

Computer Graphics Technology Program
End of Semester Reflection

Course No. CGT 351 **Reflection by: M. Flaherty** **Semester: Spring 2008**

Instructions: Please be specific in regards to any changes you believe need to be made to this course and how the course objectives were affected.

1. Do any course objectives need to be deleted, added, or revised in any manner? Were there any course objectives, or other course materials, that a significant number of students did not adequately comprehend?

   Response: No

2. Comment on course assessment assignments where students did not meet your expectations.

   Response: All students met expectations this semester.

3. Was the textbook (or course notes) adequate to meet the goals of the course?

   Response: Yes. Several textbooks are used and they are all excellent.

4. Does the course sufficiently challenge, or overly challenge, our students?

   Response: Yes. This class has several major projects on entirely new material.

5. Comment on anything new tried in the course and its results(s) and indicate you recommendations as to whether or not this implementation should be continued, i.e. new course materials or teaching techniques.

   Response: No comment.

6. Did the laboratory exercises support course objectives and were the students sufficiently engaged?

   Response: Yes

7. Are there laboratory assignments that need rewriting to remove ambiguities, or updated?

   Response: no

8. Does the laboratory equipment or software used for the course need to be replaced or updated?

   Response: Yes. The software should be replaced in the Fall 2008 semester.

Computer Graphics Technology Program
End of Semester Reflection

Course No. CGT 356 **Reflection by: Prof. K. Marshall** **Semester: Spring 2008**

Instructions: Please be specific in regards to any changes you believe need to be made to this course and how the course objectives were affected.

1. Do any course objectives need to be deleted, added, or revised in any manner? Were there any course objectives, or other course materials, that a significant number of students did not adequately comprehend?

   Response: No

2. Comment on course assessment assignments where students did not meet your expectations.

   Response: All students who regularly attended this class met course expectations as outline in the syllabus.

3. Was the textbook (or course notes) adequate to meet the goals of the course?

   Response: Yes, several textbooks are cited and used.

4. Does the course sufficiently challenge, or overly challenge, our students?

   Response: Yes. This is a very demanding upped division course.

5. Comment on anything new tried in the course and its results(s) and indicate you recommendations as to whether or not this implementation should be continued, i.e. new course materials or teaching techniques.

   Response: No comment.

6. Did the laboratory exercises support course objectives and were the students sufficiently engaged?

   Response: Yes

7. Are there laboratory assignments that need rewriting to remove ambiguities, or updated?

   Response: No

8. Does the laboratory equipment or software used for the course need to be replaced or updated?

   Response: Yes. As in other courses, the software is old and is scheduled to be replace inn the Fall 2008 semester.

Computer Graphics Technology Program
End of Semester Reflection

Course No. CGT 411 **Reflection by: Dr. Mark Bannatyne** **Semester: Spring 2008**

Instructions: Please be specific in regards to any changes you believe need to be made to this course and how the course objectives were affected.

1. Do any course objectives need to be deleted, added, or revised in any manner? Were there any course objectives, or other course materials, that a significant number of students did not adequately comprehend?

   Response: No. The course objectives for this course were overhauled in 2007.

2. Comment on course assessment assignments where students did not meet your expectations.

   Response: All students are required to attend this class – period. Only those students who fail to meet the expectations of their groups, or do not attend class have problems meeting course expectations.

3. Was the textbook (or course notes) adequate to meet the goals of the course?

   Response: This is a project-based course so no textbook is used.

4. Does the course sufficiently challenge, or overly challenge, our students?

   Response: Yes. This is a very demanding class with a client from industry.

5. Comment on anything new tried in the course and its results(s) and indicate you recommendations as to whether or not this implementation should be continued, i.e. new course materials or teaching techniques.

   Response: Lectures were consolidated into the first 8 weeks only.

6. Did the laboratory exercises support course objectives and were the students sufficiently engaged?

   Response: There are no assignments other than the major group project.

7. Are there laboratory assignments that need rewriting to remove ambiguities, or updated?

   Response: Please see remarks in #6.

8. Does the laboratory equipment or software used for the course need to be replaced or updated?

   Response: Not applicable for this class.

Computer Graphics Technology Program
End of Semester Reflection

Course No. CGT 415 **Reflection by: Dr. Mark Bannatyne** **Semester: Spring 2008**

Instructions: Please be specific in regards to any changes you believe need to be made to this course and how the course objectives were affected.

1. Do any course objectives need to be deleted, added, or revised in any manner? Were there any course objectives, or other course materials, that a significant number of students did not adequately comprehend?

   Response: No. The course objectives for this course were overhauled in 2007.

2. Comment on course assessment assignments where students did not meet your expectations.

   Response: All students are required to attend this class – period. Only those students who fail to meet the expectations of their clients, or do not attend class have problems meeting course expectations.

3. Was the textbook (or course notes) adequate to meet the goals of the course?

   Response: This is a project-based course so no textbook is used.

4. Does the course sufficiently challenge, or overly challenge, our students?

   Response: Yes. This is a very demanding class with a client from industry.

5. Comment on anything new tried in the course and its results(s) and indicate you recommendations as to whether or not this implementation should be continued, i.e. new course materials or teaching techniques.

   Response: No comment.

6. Did the laboratory exercises support course objectives and were the students sufficiently engaged?

   Response: There are no assignments other than the students' individual project.

7. Are there laboratory assignments that need rewriting to remove ambiguities, or updated?

   Response: Please see remarks in #6.

8. Does the laboratory equipment or software used for the course need to be replaced or updated?

   Response: Not applicable for this class.

Computer Graphics Technology Program
End of Semester Reflection

Course No. CGT 416 **Reflection by: Dr. Mark Bannatyne** **Semester: Spring 2008**

Instructions: Please be specific in regards to any changes you believe need to be made to this course and how the course objectives were affected.

1. Do any course objectives need to be deleted, added, or revised in any manner? Were there any course objectives, or other course materials, that a significant number of students did not adequately comprehend?

   Response: No. The course objectives for this course were overhauled in 2007.

2. Comment on course assessment assignments where students did not meet your expectations.

   Response: This course is run primarily as an independent study course. Only those students who fail to meet the expectations of their clients have problems meeting course expectations.

3. Was the textbook (or course notes) adequate to meet the goals of the course?

   Response: This is a project-based course so no textbook is used.

4. Does the course sufficiently challenge, or overly challenge, our students?

   Response: Yes. This is a very demanding class with a client from industry.

5. Comment on anything new tried in the course and its results(s) and indicate you recommendations as to whether or not this implementation should be continued, i.e. new course materials or teaching techniques.

   Response: No comment.

6. Did the laboratory exercises support course objectives and were the students sufficiently engaged?

   Response: There are no assignments other than the students' individual project.

7. Are there laboratory assignments that need rewriting to remove ambiguities, or updated?

   Response: Please see remarks in #6.

8. Does the laboratory equipment or software used for the course need to be replaced or updated?

   Response: Not applicable for this class.

Computer Graphics Technology Program
End of Semester Reflection

Course No. CGT 442 **Reflection by: Prof. K. Marshall** **Semester: Spring 2008**

Instructions: Please be specific in regards to any changes you believe need to be made to this course and how the course objectives were affected.

1. Do any course objectives need to be deleted, added, or revised in any manner? Were there any course objectives, or other course materials, that a significant number of students did not adequately comprehend?

   Response: No

2. Comment on course assessment assignments where students did not meet your expectations.

   Response: Students are expected to work in class and independently. Those who do this usually have success.

3. Was the textbook (or course notes) adequate to meet the goals of the course?

   Response: Yes

4. Does the course sufficiently challenge, or overly challenge, our students?

   Response: Yes. This is a very demanding class technologically and student must keep up.

5. Comment on anything new tried in the course and its results(s) and indicate you recommendations as to whether or not this implementation should be continued, i.e. new course materials or teaching techniques.

   Response: No comment at this time.

6. Did the laboratory exercises support course objectives and were the students sufficiently engaged?

   Response: Most exercises have been replaced with assignments.

7. Are there laboratory assignments that need rewriting to remove ambiguities, or updated?

   Response: Please refer to my comments in #6.

8. Does the laboratory equipment or software used for the course need to be replaced or updated?

   Response: Yes. This is a problem that will be resolved in the Fall 2008 semester.

Computer Graphics Technology Program
End of Semester Reflection

Course No. CGT 456 **Reflection by: Prof. D. Baldwin Semester: Spring 2008**

Instructions: Please be specific in regards to any changes you believe need to be made to this course and how the course objectives were affected.

1. Do any course objectives need to be deleted, added, or revised in any manner? Were there any course objectives, or other course materials, that a significant number of students did not adequately comprehend?

   Response: No. The objectives of this course were revised in past semesters.

2. Comment on course assessment assignments where students did not meet your expectations.

   Response: Students have no problem meeting expectations if they attend labs and lectures regularly.

3. Was the textbook (or course notes) adequate to meet the goals of the course?

   Response: Yes. The current textbook is very good.

4. Does the course sufficiently challenge, or overly challenge, our students?

   Response: Yes. This is the last class for Multimedia students and is very intensive.

5. Comment on anything new tried in the course and its results(s) and indicate you recommendations as to whether or not this implementation should be continued, i.e. new course materials or teaching techniques.

   Response: This class is occasionally “team taught”.

6. Did the laboratory exercises support course objectives and were the students sufficiently engaged?

   Response: Laboratory exercises are geared to lead to major projects.

7. Are there laboratory assignments that need rewriting to remove ambiguities, or updated?

   Response: No. All lab exercises have been revised in past semesters and updated.

8. Does the laboratory equipment or software used for the course need to be replaced or updated?

   Response: Yes. All lab software is due to be updated in the Fall 2008 semester.

Computer Graphics Technology Program
End of Semester Reflection

Course No. CGT 499 **Reflection by: Dr. Mark Bannatyne** **Semester: Spring 2008**

Instructions: Please be specific in regards to any changes you believe need to be made to this course and how the course objectives were affected.

1. Do any course objectives need to be deleted, added, or revised in any manner? Were there any course objectives, or other course materials, that a significant number of students did not adequately comprehend?

   Response: This course is used for independent study needs and therefore objectives vary upon its application each semester.

2. Comment on course assessment assignments where students did not meet your expectations.

   Response: Vary according to use of course.

3. Was the textbook (or course notes) adequate to meet the goals of the course?

   Response: Textbooks may or may not be used depending on topic taught.

4. Does the course sufficiently challenge, or overly challenge, our students?

   Response: This dependent on the topic being taught, and assignments.

5. Comment on anything new tried in the course and its results(s) and indicate you recommendations as to whether or not this implementation should be continued, i.e. new course materials or teaching techniques.

   Response: This depends on the topics being delivered.

6. Did the laboratory exercises support course objectives and were the students sufficiently engaged?

   Response: This depends on the topics being delivered.

7. Are there laboratory assignments that need rewriting to remove ambiguities, or updated?

   Response: This depends on the topics being delivered.

8. Does the laboratory equipment or software used for the course need to be replaced or updated?

   Response: Software varies according to the subject being addressed.

2007-2008 PRAC Report: Electrical Engineering

1. **What general outcome are you seeking?**	2. **How would you know it** (the outcome) **if you saw it?** (What will the student know or be able to do?)	3. **How will you help students learn it?** (in class or out of class)	4. **How could you measure each of the desired behaviors listed in #2?**	5. **What are the assessment findings?**	6. **What improvements have been made based on assessment findings?**
ABET c: An 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	Create a design to solve a problem Apply constraints correctly Incorporates safety, environmental issues, etc into the design	Major design capstone project Design projects in other classes throughout curriculum	Design project reports graded with rubric Design project presentations judge by jury of faculty, staff, students, and representatives of industry. Student satisfaction surveys Industrial Advisory board feedback Student Advisory board feedback	Students are running out of time preparing the projects. They aren't able to perform multiple iterations on the project. This was determined by evaluating their projects as well as feedback from the Industrial Advisory Board. Industrial Advisory Board suggested that the increased depth of the projects would be valuable.	ECE 492 Senior Design is being converted to a two-semester course. ECE 487(1 cr.) and 488(2 cr.) will be the new course numbers. Students will receive project assignments about one-half of the way through the first semester.

ABET e: an ability to identify, formulate, and solve engineering problems K: an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.	Students use the C programming language to solve a stated problem. Demonstrate ability to use object-oriented features of the C programming language.	A pair of classes one in freshman year, one in sophomore year to teach basic C programming and more advanced C programming.	In class projects In class exams Homework assignments Course outcomes surveys Student Advisory Council Exit Interviews	Projects, exams, and homework assignments show that students retain little of the information from the first course to the second course. Course outcomes surveys show that students are not very confident in their ability to perform the primary outcomes of the course. Students told us in both the outcomes surveys, in the student advisory board, and exit interviews that the second course required too much work for a 2 credit class and that too much time is spent reviewing material from the first course.	Faculty developed a plan to create one C Programming course to cover material presented in both courses. The new course ECE 262 will be 4 credits and will contain the same material covered in the two previous courses.
ABET f: an understanding of professional and ethical responsibility	Students have developed goals for their long-term and short-term career and have developed a plan on how they hope to get there. Students have a resume and sample cover letter ready to use. Students understand the daily life of an engineer, how to behave in a business environment.	In class, guest lectures from education professionals and engineering professionals. Writing assignments including resume, cover letter, and career plan.	Course outcomes survey Student satisfaction survey Alumni Surveys Employer Survey Homework assignments Graduate exit interviews Student Advisory Committee	Feedback from students in their satisfaction surveys, exit interviews, and Student Advisory Committee all show that students wished they had received information on resume writing, graduate school, and career opportunities earlier in their college career.	ECE 400 Senior Seminar is being discontinued and reconstituted as ECE 200 Sophomore Seminar to give students earlier exposure to subjects such as interviewing, resume writing, entrepreneurship, and internships. This change has been formalized this year and will be run for the first time this fall.

ABET h: the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context K:an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.	Students will have an ability to plan a project from beginning to end and shepherd the project through to the end. Students will be able to understand economics and its importance in the field of engineering.	Right now, project management is introduced as part of the senior design capstone class. Economics is not a required part of the curriculum. It is accepted as a general education elective, however these classes are not focused on engineering.	Course outcomes survey Alumni surveys Employer surveys Exams Student Advisory Committee Industrial Advisory Board	Feedback from the Industrial Advisory Board suggests that understanding the business side of engineering, more specifically economics, is vital to an engineer being successful in industry. The Board also suggests that having a project management background would give an engineer more and better career opportunities.	Faculty voted for the creation of an Engineering Economics course based on feedback from our Industrial Advisory Board and Alumni. The new course will be one of a few courses which will satisfy a new Economics requirement on the Plan of Study. A new General Education elective was proposed and passed by the department faculty. Engineering Project Management is in the process of being approved for future offerings. Feedback from Industrial Advisory Board and alumni spurred this change.
ABET a: an ability to apply knowledge of mathematics, science, and engineering	Students will be able to solve simple problems in controls and understand the concepts behind them.	ECE 382 is cross-listed with ME 482. The course is taught alternately by ECE and ME faculty each semester with students from both departments present in the class.	Course outcomes surveys Student Advisory committee Graduate Exit Interviews	Student feedback has been overwhelming in that they feel cross listing creates a problem because of the differing background of the ECE and ME students. Much time is spent covering material that one group or another hadn’t seen before.	Based on feedback from students and faculty and course outcomes surveys, it was decided that ECE 382 would no longer be cross-listed with ME 482. Faculty found that the two populations came into the course with different skills. Too much time was spent catching one group up with the other group. Separating the courses allows the students to focus on Electrical Engineering examples in class which will provide a better understanding of the material.

2007-2008 PRAC Report: Computer Engineering

1. **What general outcome are you seeking?**	2. **How would you know it** (the outcome) **if you saw it?** (What will the student know or be able to do?)	3. **How will you help students learn it?** (in class or out of class)	4. **How could you measure each of the desired behaviors listed in #2?**	5. **What are the assessment findings?**	6. **What improvements have been made based on assessment findings?**
ABET c: An 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	Create a design to solve a problem Apply constraints correctly Incorporates safety, environmental issues, etc into the design	Major design capstone project Design projects in other classes throughout curriculum	Design project reports graded with rubric Design project presentations judge by jury of faculty, staff, students, and representatives of industry. Student satisfaction surveys Industrial Advisory board feedback Student Advisory board feedback	Students are running out of time preparing the projects. They aren't able to perform multiple iterations on the project. This was determined by evaluating their projects as well as feedback from the Industrial Advisory Board. Industrial Advisory Board suggested that the increased depth of the projects would be valuable.	ECE 492 Senior Design is being converted to a two-semester course. ECE 487(1 cr.) and 488(2 cr.) will be the new course numbers. Students will receive project assignments about one-half of the way through the first semester.

ABET e: an ability to identify, formulate, and solve engineering problems K: an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.	Students use the C programming language to solve a stated problem. Demonstrate ability to use object-oriented features of the C programming language.	A pair of classes one in freshman year, one in sophomore year to teach basic C programming and more advanced C programming.	In class projects In class exams Homework assignments Course outcomes surveys Student Advisory Council Exit Interviews	Projects, exams, and homework assignments show that students retain little of the information from the first course to the second course. Course outcomes surveys show that students are not very confident in their ability to perform the primary outcomes of the course. Students told us in both the outcomes surveys, in the student advisory board, and exit interviews that the second course required too much work for a 2 credit class and that too much time is spent reviewing material from the first course.	Faculty developed a plan to create one C Programming course to cover material presented in both courses. The new course ECE 262 will be 4 credits and will contain the same material covered in the two previous courses.
ABET f: an understanding of professional and ethical responsibility	Students have developed goals for their long-term and short-term career and have developed a plan on how they hope to get there. Students have a resume and sample cover letter ready to use. Students understand the daily life of an engineer, how to behave in a business environment.	In class, guest lectures from education professionals and engineering professionals. Writing assignments including resume, cover letter, and career plan.	Course outcomes survey Student satisfaction survey Alumni Surveys Employer Survey Homework assignments Graduate exit interviews Student Advisory Committee	Feedback from students in their satisfaction surveys, exit interviews, and Student Advisory Committee all show that students wished they had received information on resume writing, graduate school, and career opportunities earlier in their college career.	ECE 400 Senior Seminar is being discontinued and reconstituted as ECE 200 Sophomore Seminar to give students earlier exposure to subjects such as interviewing, resume writing, entrepreneurship, and internships. This change has been formalized this year and will be run for the first time this fall.

ABET h: the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context K:an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.	Students will have an ability to plan a project from beginning to end and shepherd the project through to the end. Students will be able to understand economics and its importance in the field of engineering.	Right now, project management is introduced as part of the senior design capstone class. Economics is not a required part of the curriculum. It is accepted as a general education elective, however these classes are not focused on engineering.	Course outcomes survey Alumni surveys Employer surveys Exams Student Advisory Committee Industrial Advisory Board	Feedback from the Industrial Advisory Board suggests that understanding the business side of engineering, more specifically economics, is vital to an engineer being successful in industry. The Board also suggests that having a project management background would give an engineer more and better career opportunities.	Faculty voted for the creation of an Engineering Economics course based on feedback from our Industrial Advisory Board and Alumni. The new course will be one of a few courses which will satisfy a new Economics requirement on the Plan of Study. A new General Education elective was proposed and passed by the department faculty. Engineering Project Management is in the process of being approved for future offerings. Feedback from Industrial Advisory Board and alumni spurred this change.

FRESHMAN ENGINEERING PROGRAM 2007 ASSESSMENT ANNUAL REPORT
Prepared by Janet Meyer and the Freshman Engineering Staff
June, 2008

1	2	3	4	5	6	7	8
Program Outcomes	**Measurable Outcomes: What Will the Student Know or Be Able To Do?**	**Courses Reflecting the Outcomes**	**Methods of Teaching and Learning**	**How Do You Measure Each of the Desired Behaviors Listed in Column 2?**	**What Are the Findings in Assessing the General Outcomes (column 1)?**	**Proposed Improvements (and Changes) Based on Available Assessment Findings?**	**Impact of Changes?**
(a) Ability to apply knowledge of mathematics, science, and engineering	Students will be able reverse-engineer a real world electro-mechanical device. Students will be able to write programs in C language to solve engineering problems. Use MATLAB to perform computations involving scalars, vectors, and matrices.	ENGR 196 ENGR 197 ENGR 297	Lectures, computer assignments, labs, group discussions, homework assignments, Reverse-engineering projects. .	Tests, homework, computer programs, course outcome surveys, student satisfaction surveys, evaluation of project reports. Surveys and grading rubric are used with the projects	Project surveys indicate increased understanding of and commitment to engineering. Over 85% of students rate themselves either 4.00 or above on a scale from 1.00 to 5.00 when asked if the course helped perform computations involving scalars, vectors, and matrices.	(a) Continue to develop better-structured projects using feedback gained. (b) Develop projects that illustrate biomedical engineering aspects.	Students have a better understanding of engineering practice.

Program Outcomes	Measurable Outcomes: What Will the Student Know or Be Able To Do?	Courses Reflecting the Outcomes	Methods of Teaching and Learning	How Do You Measure Each of the Desired Behaviors Listed in Column 2?	What Are the Findings in Assessing the General Outcomes (column 1)?	Proposed Improvements (and Changes) Based on Available Assessment Findings?	Impact of Changes?
(b) Ability to design and conduct experiments, as well as to analyze and interpret data	Students will be able to conduct experiments by following instructions for set up of simple experiments. Students will be able to obtain experimental, numerical or graphical data and to compare results with theoretical models. Students will be able to construct a simple circuit	ENGR 196	Tutorials in class, lectures, computer assignments, lab work, group discussions, homework assignments, mentoring assistance with upper-level students, and Web resources.	Lab reports, online quizzes, exams, Bobot (robot) project survey, and outcome surveys.	Cheating appeared to be a problem with online quizzes Currently 58% of students rate themselves 4.00 or above on a scale of 1.00 to 5.00 on their ability to construct a simple circuit.	(a) Use robots to illustrate electrical principles. (b) Institute the use of frequent classroom assessment techniques to encourage and monitor student learning (c) Spend less course time on ProEngineer and more time building circuits (d) Enhance use of mentoring in the EDDP course.	Data collection is continuing; however students still have difficulty understanding electrical principles; use of mentors appears to improve student outcomes. Online quizzes were used to facilitate assessment but these will be discontinued since the incidence of academic misconduct appeared to rise. In-class assessments will be used instead.

Program Outcomes	Measurable Outcomes: What Will the Student Know or Be Able To Do?	Courses Reflecting the Outcomes	Methods of Teaching and Learning	How Do You Measure Each of the Desired Behaviors Listed in Column 2?	What Are the Findings in Assessing the General Outcomes (column 1)?	Proposed Improvements (and Changes) Based on Available Assessment Findings?	Impact of Changes?
(d) Ability to function on multi-disciplinary teams	Students will be able to work together in small groups to carry out experiments and to complete projects. Students will be able to collaborate with others to report on project findings, orally and in writing. Students will be able to operate as a member of a team with an understanding of the roles and relationships of members.	ENGR 195, ENGR 196	Lectures and team building exercises; practice in teamwork doing laboratory experiments, reverse engineering projects, library research projects, and team oral and written reports. Fruit drops combining design strategies and teamwork were initiated in ENGR 195.	Lab reports, project presentation grades, team applications,and peer evaluations, outcome surveys	Well over 80% Students have improved understanding of the roles and requirements of teamwork Some students comment on the time-management difficulty regarding teamwork.	(a) Continue to Include more specific teamwork instruction in ENGR 195 and ENGR 196; and (a) continue to extend reverse engineering team projects to all sections at IUPUI. (b) Continue teamwork instruction at Butler, continue second team project, and improve team mentoring. (c) Continue teamwork instruction in ENGR 195 and continue use of Fruit drops. (d) Continue to address time-management issues. Use course management system to facilitate teamwork.	Student satisfaction regarding teamwork instruction is extremely high. Team applications indicate that students initially prefer to work alone and have some apprehension about teamwork. Outcome results indicate the attitudes toward teamwork improve. Comments in the qualitative portion of Outcome surveys indicate that students found the fruit drops (pumpkins in the fall, honeydews in the spring) an engaging instructional method for learning about teamwork.

Program Outcomes	Measurable Outcomes: What Will the Student Know or Be Able To Do?	Courses Reflecting the Outcomes	Methods of Teaching and Learning	How Do You Measure Each of the Desired Behaviors Listed in Column 2?	What Are the Findings in Assessing the General Outcomes (column 1)?	Proposed Improvements (and Changes) Based on Available Assessment Findings?	Impact of Changes?
(e) Ability to identify, formulate, and solve engineering problems	Starting with a given problem, students will be able to develop and solve algorithms with C programs. Using MATLAB students will be able to write and execute a scrip file to solve problems. They will use loops, selection structures, arrays and input/output commands in MATLAB programs. They will write user defined functions and use strategies to model data. Students will use MATLAB to solve simultaneous equations	ENGR 197 ENGR 297	Lectures, assigned computer programs, and class exercises.	Tests, quizzes, homework, computer programs, outcome surveys.	In six sections approximately 65% of students rate themselves at 4.00 or above on a scale of 1.00 to 5.00 when asked about ability to develop algorithms using a step by step process Approximately 55% of students rate their ability in writing programs in C to solve engineering problems at 4.00 or above. More attention will continue to be directed towards improving this outcome. ENGR 297 was first taught in as a regular offering in Spring 2007. Approximately 80% of students rate themselves 4.00 or above on a scale of 1.00 to 5.00 when questioned about their ability to perform outcome e skills.	(a) With MATLAB no longer being taught in ENGR 196 and 197 more focused attention to C-programming is possible in ENGR 197. (b) Maintain the use of flow charting and pseudo-coding to improve understanding of algorithms (c) Continue teaching MATLAB as a separate course	Last year there was a concern about understanding of algorithms. Outcomes evidence that this is improving. Matlab was removed from the ENGR 196 and 197 curricula and is being taught as ENGR 297 beginning in 2007. Assessment on this change is continuing

Program Outcomes	Measurable Outcomes: What Will the Student Know or Be Able To Do?	Courses Reflecting the Outcomes	Methods of Teaching and Learning	How Do You Measure Each of the Desired Behaviors Listed in Column 2?	What Are the Findings in Assessing the General Outcomes (column 1)?	Proposed Improvements (and Changes) Based on Available Assessment Findings?	Impact of Changes?
(f) Understand professional and ethical responsibilities.	Students should be able to demonstrate a knowledge of the engineering professional societies Students should be able to articulate an understanding of the responsibility of engineers regarding safety.	ENGR 195	Presentations by student organizations, web searches, lectures and case studies.	Increased membership in student organizations Homework, reports, student satisfaction surveys, and outcome surveys. Survey developed as part of the Gateway Grant	Freshman student membership in the engineering professional societies is currently low. According to our study students who become involved typically do so in their freshman year. In nine sections of ENGR 195 over 80% of students rate themselves at 4.00 or above on a scale of 1.00 to 5.00 when asked if they could articulate the responsibility of engineers regarding safety.	An engineering society fair is planned for a few weeks after school starts. More effort needs to be made to introduce students to the engineering societies. Continue to emphasize the safety aspect of engineering in ENGR 195.	Improvements need to be made in recruiting freshman engineering students to professional societies.

Program Outcomes	Measurable Outcomes: What Will the Student Know or Be Able To Do?	Courses Reflecting the Outcomes	Methods of Teaching and Learning	How Do You Measure Each of the Desired Behaviors Listed in Column 2?	What Are the Findings in Assessing the General Outcomes (column 1)?	Proposed Improvements (and Changes) Based on Available Assessment Findings?	Impact of Changes?
(g) Ability to communicate effectively	Students will be able to write reports and make project presentations to peers.	ENGR 195 ENGR 196	Lectures, project reports, and oral presentations including PowerPoint presentations.	Written report and oral presentation evaluations using rubrics.	Students are developing an appreciation for communication skills in engineering. Over 80% of ENGR 195 students continue to rate themselves 4.00 or above on a scale of 1.00 to 5.00 when asked whether the course improved their ability to collaborate to produce a report. This number is the same as the previous year. Almost 60% of EDDP students now rate themselves at 4 or above in ability to write a short report. Better guidelines continue to be needed for reports in reverse engineering project. Last year less than 50% of ENGR 196 rated themselves 4.00 or above on a scale of 1.00 to 5.00 when asked whether the course helped them to write lab and project reports. This year's rating is 63%	(a) Change topic for ENGR 195 research reports to environmental, energy and global issues. (b) Continue to improve guidelines for reverse engineering project reports. Provide sample reports and add group exercises in critiquing reports. (c) In fall 2008 one section of ENGR 195 and ENGR 196 will be linked with English composition as part of a "Themed Learning Community" (TLC). There will be another section of ENGR 195 and ENGR 196 linked with COMM-R110 (Public Speaking). (d) Make rubric available to students for grading "One minute engineer" presentations.	ENGR 195 students are able to collaborate to produce a paper that includes citations. Continue to emphasize communication skills and their relevance in engineering to engineering freshmen.

Program Outcomes	Measurable Outcomes: What Will the Student Know or Be Able To Do?	Courses Reflecting the Outcomes	Methods of Teaching and Learning	How Do You Measure Each of the Desired Behaviors Listed in Column 2?	What Are the Findings in Assessing the General Outcomes (column 1)?	Proposed Improvements (and Changes) Based on Available Assessment Findings?	Impact of Changes?
(h) The broad education necessary to understand the impact of engineering solutions in a global and societal context	Students will demonstrate awareness of global impact of engineering on society and environment.	ENGR 195 EDDP course ENGR 190	Lectures, literature surveys and case studies.	Homework, project reports, project presentations, and outcome surveys.	Students indicate a preliminary understanding in outcome surveys and in Over 86% of ENGR 195 and approximately 70% of EDDP students rate themselves 4.00 or above on a scale of 1.00 to 5.00 when asked if they can articulate a definition of engineering and appreciate the contributions of engineering and engineers in today's world.	(a) Use more real world examples in ENGR 195 (including products investigated in ENGR 196) when studying impact of engineering on society. (b) The research topic in ENGR 195 is changed in Fall 2007 from an engineering disaster to one covering global, environmental or energy issues.	Students appear to have a basic understanding of the engineering profession and its contributions.

Program Outcomes	Measurable Outcomes: What Will the Student Know or Be Able To Do?	Courses Reflecting the Outcomes	Methods of Teaching and Learning	How Do You Measure Each of the Desired Behaviors Listed in Column 2?	What Are the Findings in Assessing the General Outcomes (column 1)?	Proposed Improvements (and Changes) Based on Available Assessment Findings?	Impact of Changes?
(k) Ability to use the techniques, skills, and modern engineering tools necessary for engineering practice	Students will be able to use engineering tools like ProE, MATLAB, Excel, and PSpice to complete engineering assignments.	ENGR 195, ENGR 196, ENGR 197 ENGR 297	Lectures, classroom assignments, tutorials, homework, laboratory work and presentations	Graded assignments, lab reports, tests, project presentations, and outcome surveys.	Outcome surveys report that student rate their ability to use ProEngineer high. Over 95% of ENGR 196 students rate themselves 4.00 or above on a scale of 1.00 to 5.00 when asked how well the course prepared them	(a) As mentioned above, MATLAB has been moved to a separate course, ENGR 297. This number is higher than the 88% from the previous year. The 2007 EDDP	Data collection is continuing.

					to use ProEngineer to prepare solid models. The number is 88% when asked about using ProEngineer to extract 2-D engineering drawings from a solid model Over 70% of ENGR 196 students rate themselves 4.00 or above on a scale of 1.00 to 5.00 when asked about their ability to use PSpice to model circuits. Over 76% of ENGR 197 students rate themselves 4.00 or above on a scale of 1.00 to 5.00 when asked how well the course has helped them use a standard C program development environment. Over 68% of ENGR 195 students rate themselves 4.00 or above on a scale of 1.00 to 5.00 when asked about their ability to utilized the library's online catalogue and over 85% rate themselves 4.00 or above when asked about familiarity with search engines.	number is 89%. The 88% number is a nine point increase from the previous two years. The outcome results are similar across sections. The ratings on PSpice are similar to the previous year. This is a negligible increase from the previous year. The 68% number is lower than last year's rating; while the 85% number is significantly higher.	Student responses regarding this outcome have significantly improved. Changes in the structure of ENGR 197, including the removal of MATLAB, took place during the past year. The course Evaluation is continuing Continue to focus on the importance of searching for sources when doing research.
	Students will be able to use a standard C program development environment. Engineering students should be able to utilize a library's resources including online databases for research and information purposes.						

Summary of Student Satisfaction Survey Results
Freshman Engineering Program
2004-2007

	Questions	Fall 2004	Spring 2005	Fall 2005	Spring 2006	Fall 2006	Spring 2007	Fall 2007
1.	Quality of Academic Advising	3.96 (143)	4.19 (101)	4.15 (121)	4.22 (109)	4.09 (175)	4.14 (146)	4.22 (211)
2.	Quality of student support in adjusting to college	3.78 (134)	3.77 (102)	3.91 (112)	3.92 (101)	3.78 (169)	3.72 (139)	3.79 (204)
3.	Scheduling of ENGR 195, 196, 197	3.99 (145)	4.08 (104)	4.01 (117)	4.19 (108)	3.97 (182)	3.95 (147)	4.03 (215)
4.	Classroom environment conducive to learning	4.07 (147)	4.14 (106)	4.18 (118)	4.27 (110)	4.16 (183)	4.13 (150)	4.21 (217)
5.	Quality of Engineering and Technology computer labs	4.00 (146)	4.07 (106)	4.40 (118)	4.49 (108)	4.30 (183)	4.15 (150)	4.22 (217)
6.	Quality of ENGR 196/197 help sessions in aiding classroom performance	3.53 (93)	3.77 (76)	3.79 (63)	3.87 (70)	3.79 (121)	3.75 (103)	3.43 (160)
7.	Opportunities for networking with fellow students and faculty through professional societies such as ASME, IEEE, AIAA, SWE, NSBE, SAE, etc.	3.81 (110)	3.58 (72)	3.70 (80)	3.66 (62)	3.80 (145)	3.78 (94)	3.38 (165)
8.	Career planning assistance, department selection (ME/ECE/others) and study skills development	3.51 (119)	3.63 (88)	3.78 (99)	3.72 (87)	3.70 (149)	3.57 (113)	3.66 (191)
9.	Overall freshman experience on the IUPUI campus	3.90 (139)	4.00 (103)	3.86 (117)	4.07 (108)	3.77 (172)	3.85 (139)	3.84 (214)

10.	Overall quality of Freshman Engineering education	3.78 (129)	4.01 (140)	4.12 (105)	4.01 (118)	4.04 (176)	4.03 (145)	4.08 (215)
11.	Quality of Instruction (new question Spring '04)	3.89 (129)	3.93 (145)	4.20 (106)	3.96 (121)	4.01 (177)	4.08 (143)	4.08 (216)

Analysis

Student satisfaction data for the Freshman Engineering Program summarized above show very similar results in nearly all categories in both semesters of 2007 when compared with those of corresponding semesters of the previous academic year. The chief difference is in the increase in the numbers of students responding in fall 2007. Since fall 2005 there has been a marked increase in the number of students involved in the freshman engineering program. (It is also important to note that these numbers include students still in University College. In almost every category, the responses of students admitted directly to engineering are higher.)

- In both spring and fall semesters, satisfaction was relatively high in the areas of academic advising, classroom and computer lab environment, quality of instruction, and overall freshman engineering education. Student satisfaction ratings in most categories remained essentially the same as the data from the previous year.

- Opportunities for networking with fellow students and faculty through professional societies such ASME, IEEE, etc. decreased especially in fall 2007. Last year a study supported by a Gateway Grant focused on improving student engagement. No improvement was seen in 2007 on the Student Satisfaction Survey; however, efforts are continuing in finding ways to improve this area.

- Assistance with career planning and department selection is an area we hope to incorporate in academic advising; especially since many students at this stage are not sure what kind of engineering they are interested in. We will initiate use of personal development plans (PDPs) in fall 2008. We continue to promote internship opportunities in the learning community, through collaboration with the School of Engineering and Technology Career Services Office, and through the freshman listserv.

- The survey indicates that students need ongoing help in adjusting to college. This is an area where further research could be done.

- Retention data for students entering during the 2004/2005 academic year is found below. It is clear from the data that retention of this particular year of entering students is better than that of previous years. Continuing assessment will take place to determine whether

this trend continues. We will also attempt to specifically determine those practices and programs that positively affect retention. However, the number of students admitted to Freshman Engineering has increased.

Retention Statistics for
Students Entering Freshman Engineering during 2004-2005 Academic Year
As of May, 2008

Academic Standing	Beginners	External Transfers	IUPUI Transfers	EDDP
Graduated or at Senior Status in Engineering	19	47	23	14
Still in Engineering at Freshman – Junior Level	4	10	1	1
Known to have Transferred to Another University	1			1
Graduated from or Enrolled in Technology	3	4	3	0
Graduated from or Enrolled in a Major other than Engineering or Technology	6	6	1	10
Dropped Out	21	26	11	8
Total	**54**	**93**	**39**	**34**
Percentage Retained in Engr	**42.59**	**61.29**	**61.54**	**44.12**

Retention Summary
Percentages of Students Retained in Engineering

Admission Category	Students Entering 1999-2000 % Retained	Students Entering 2000-2001 % Retained	Students Entering 2001-2002 % Retained	Students Entering 2002-2003 % Retained	Students Entering 2003-04 % Retained	Students Entering 2004-05 % Retained
Beginners	35.19	45.24	40.62	26.41	31.15	42.59
External Transfers	51.43	42.57	53.52	45.33	44.74	61.29
IUPUI Transfers	55.56	69.57	53.66	42.37	46.43	61.54
EDDP	37.14	40.0	30.58	37.93	29.5	44.12
Overall Retention (All Students)	**45.12 (n = 195)**	**40.82 (n = 196)**	**45.79 (n = 214)**	**38.88 (n = 216)**	**38.81 (n=237)**	**54.09 (n=220)**

INTERIOR DESIGN TECHNOLOGY 2008 ASSESSMENT REPORT
Prepared by Emily McLaughlin
June 2008

Overview

The underlying objective of the Interior Design Technology (INTR) programs is to create multidisciplinary individuals with the necessary skills to enter the technology driven industries of the new millennium. Classroom knowledge links applications to the field through multiple service-learning activities with community partners, and student learning is regularly measured and assessed using PUL and CIDA outcomes, as well as industry feedback.

During the 2007 academic year, the Interior Design Technology program demonstrated the commitment to best practices by examining the IUPUI Principles of Undergraduate Learning, and CIDA professional standards, as well as evaluating assessment techniques used to measure learning outcomes related to these principles.

Design Technology programs joined the Department of Design and Communication Technology in fall of 2007. As the new organizational structure took shape, a renewed focus on the assessment data collection process has been initiated and should prove to be beneficial. In addition, the Interior Design Technology program completed an elaborate self study in preparation for a CIDA accreditation site visit in October 2007.

Evaluation of Previous Assessment Initiatives

As of June 2007, INTR maintained more than 12 part-time and 4 full-time faculty members instructing a rich curriculum including over 26 undergraduate courses, with an associates degree, and a fairly young 135 credit BS degree in Interior Design Technology. The strategy of monitoring and assessing learning consistently across all sections of INTR classes is embedding the IUPUI Principles of Undergraduate Learning [PUL] into all instructional objectives.

Prior to 2007, our full-time and associate faculty met the challenge of providing assessment data to help determine if the department achieved its ongoing objective of imbedding the PUL approach in classes required by ABET accredited programs and coursework mandated by CIDA. Syllabi for each course (and each of its sections) were collected and examined in addition to the following evidence:

1. Homework assignments, lab reports, projects and presentations, final exams
2. Capstone project reports
3. Student satisfaction surveys
4. Student exit surveys
5. Alumni surveys
6. Employer surveys
7. Industrial Advisory Board appraisals
8. Faculty end-of-semester reflections
9. Internship reports done by graduates

Previous department improvements and initiatives were assessed at a spring 2007 department meeting. An ongoing evaluation of student performance at the senior-level continues to mandate further modifications to the DST curriculum, particularly as we only witnessed 10 graduates from our B.S. degree program in interior design technology.

2007 Assessment Initiatives

As our programs have matured, we have adopted a self-study process involving systematic assessment practices and elaborate self-study. The following chronology of continuous improvement describes the ongoing evaluation of data for the program inputs and outcomes, summarizes the results from this periodic evaluation. Later we explain how the results are being used to improve the effectiveness of the program.

1. Determined Assessment Objectives

From the very beginning, the primary and leading objective of our programs has been to successfully secure and retain accreditation from our accrediting bodies. In order to properly prepare for this complex task, it has become extremely important for us to continually educate ourselves on successful assessment practices and self-study methods. As a result, one faculty member from our program has attended the Council for Interior Design Accreditation workshop offered in conjunction with the Interior Design Educators Council International Conference each year since 2004. In addition, Gail Shiel attended a Technological Education Initiative Regional Faculty Workshop in 2006. Emily McLaughlin attended the Best Assessment Processes VIII Symposium at the Rose Hulman Institute of Technology in 2006.

2. Created a Plan and Timetable for Completion

The faculty and advisory board identified educational objectives and goals for our programs. It was strongly desired to create a unique graduate, capable of varied technical abilities. A timeline for implementation and accreditation was completed.

3. Identified Self-Study Criteria

Undoubtedly, the CIDA Professional Standards and indicators were identified as the primary criteria by which to measure curriculum success and student achievement. These clearly identified guidelines were applied to courses within our curriculum even prior to the creation of our degrees in some cases, allowing a distinct level of clarity with relation to the placement of student outcomes. In addition, the specific educational goals set forth for our program were related to PUL indicators to ensure compliance and fulfillment.

4. Identified Self-Study Measures and Methods

Multiple measures to evaluate achievement were used, including the compilation of complete lesson plans and materials for every course in our curriculum. All course inputs were assembled in a binder for review and analysis. Student work, including projects, exams and papers among others, were collected for every course. In addition, the methods which were used to collect and organize these materials were explained early to all faculty, and instructors were asked to save all documentation associated with their course, including juror comments and student surveys.

5. Implemented Self-Study Measures and Methods

Firm deadlines were set for the collection of assessment materials from faculty at the end of each semester. Advisory board meetings have been held consistently, and exit surveys have been systematically distributed. Curriculum meetings and retreats were used as opportunities to further report on progress.

6. Analyzed Gathered Information and Planned and Implemented Improvements

Strengths and gaps in the curriculum were primarily identified through a yearly exhibition of student work assembled in a week long display (sponsored by the Student Design Organization) which is viewed and analyzed by faculty, students and local design professionals. It is here that student performance is closely evaluated, and inconsistencies or overlaps in student work are detected and discussed. Curriculum changes are proposed and implemented as a result of this intensive exercise.

Our program has been religious in facilitating a curriculum retreat each fall, at which examination of student work, open discussion and dialogue regarding outcomes, industry expectations and curriculum concerns are aired. Conclusions are drawn from the discussion and further changes to the program are executed.

The comments of local professionals who have served as jurors for student presentations, reviewed portfolios and participated in mock interview situations with students to further determine the legitimacy of our program and the readiness of our graduates were reviewed by faculty.

Our highly involved advisory board, consisting of both local and national authorities, provides invaluable criticisms on a bi-yearly basis. It is with their insight and recommendations that the program of study is consistently scrutinized and revised to ensure validity with professional practice and to make certain that program goals remain current

Exit interview surveys were analyzed by the faculty and have brought about simple changes based on the recommendations of those who have completed our entire curriculum. Changes to the exit survey's themselves have been completed bi-yearly as the faculty and institution seek new and revised information.

Each semester, individual student commentary and feedback are given to faculty at mid-semester which provides valuable criticism, allowing each to take note of student concerns and consider modifications to individual courses based on this important student commentary.

Within our University setting, yearly evaluations are conducted including systematic institutional assessment data such as enrollment figures, retention rates, minority student participation and academic progress. Faculty effectiveness, achievement, awards, activities, and teaching ability are reviewed according to normal campus guidelines. Student assessment of the program is an ongoing process through course evaluations. This feedback and quantitative data has been used to modify curriculum in conjunction with CIDA and PUL's.

Identification of strengths and gaps in curriculum has been a regular department meeting topic of discussion. In addition to these almost weekly discussions, multiple retreats which included all full and part-time instructors who teach courses in our curriculum have been held to solicit the input of every single individual associated with the program. The information gathered has been used to precisely identify key indicators of student outcomes.

7. Evaluated the Quality of Self-Study Methods

The self-study process has proved to be a comprehensive examination of our programs. Most methods used were demonstrated to be incredibly useful in analyzing strengths and gaps within the curriculum. While all deadlines were met for this study, the majority of this study was completed on an accelerated timeline as to eliminate delay in securing accreditation for our young program, and to accommodate CIDA's availability to complete a site visit for the interior design technology program in the fall of 2007. This in mind, when completing future self-study, the programs concludes that a similar process should be followed.

DST Program/Department Analysis

Much evidence has been collected to assess whether or not the program is meeting its stated educational goals. Some of this data includes examination of student work, inspection of internship papers and employer feedback, analysis of exit interviews and surveys, feedback of the advisory board and student placement rates. Close analysis of these items suggest that a strong understanding of our educational goals prior to the creation of the degree was an integral factor in the success of our curriculum and our graduates.

Through self-study we identified numerous strengths in meeting our educational goals. The response of graduates and industry boasts the ability of our students to understand and apply knowledge to multiple disciplines in the field, while also retaining extensive technical capabilities useful in many arenas. Our nearly 100% job placement rate is further evidence that our students possess the skill sets needed to work in collaborative environments and enthusiastic to continue their education through commitment to the profession. Student work indicates that students retain a powerful understanding of environmental and cultural issues both regionally and internationally.

Minor gaps could be observed through self-study with relation to meeting our educational goals. Slight overlaps and inconsistencies among students with relation to oral and written communication skills was observed. In addition, the ability to prove that students are acting as responsible citizens was found difficult to measure.

Our educational goals have evolved over recent years. Consideration of changes to departmental structure and industry trends has stimulated us to modify our goals to fit contemporary criteria. Initially, we had ten educational goals. However, we found in many cases that multiple goals desired the same outcome. In some instances this led to strengths and gaps, especially as it related to measuring the outcomes significance toward success or failure in meeting the criteria. As the assessment committee discussed this further, it attempted to focus on ways to specifically measure and relate outcomes as they related to CIDA outcomes. Thus, while multiple courses may touch on several criteria, the intent is to make sure that specific courses are charged and assessed per these criteria, even though instances of every course could be cited as meeting some level of each.

During the self-study process, where strengths and weaknesses are found as a result of our evaluation process, faculty members and the department assessment committee first discuss possible remedies. Faculties then implement changes as required; and, where appropriate seek additional input from industry. Changes then are evaluated using surveys, project reviews, tests, quizzes, homework assignments, papers, course and instructor evaluation and other tools to determine if further improvements and adjustments are required. In essence, a continual and closed loop system is employed to insure continuous improvement.

The Design Technology programs at IUPUI have been successful in creating degrees built upon already established sets of guidelines for education and the industry. This plan has provided a strong foundation on which to build unique degrees with traits which are vastly desired in both the Indianapolis community as well as around the country. Through extensive self-study and assessment of the program, we recognize several areas of success in our curriculum, as well as areas which can and will be strengthened through the implementation of continuous improvements. It is our ultimate goal and aspiration to secure accreditation, and continue to provide graduates who are highly employable and motivated to continue a lifetime of service and benefit to the profession.

We have reached many conclusions regarding the overall quality of our program.

1. We have discovered that our multidisciplinary curriculum is arming our graduates with skills needed to enter an ever changing and technological workforce. These students are capable of functioning in traditional roles, or able to create their own vocation based on industry needs and trends. A strong understanding of the architectural and construction industries, as well as knowledge of computer graphics, fine arts and organizational leadership have made our alumni invaluable and highly desired, hence our nearly100% placement rate and surplus of positive industry feedback.

2. A positive characteristic of our program which we have observed is our supportive, urban setting. With an extremely active advisory board, plethora of field trip locations, unending sources of information and multiplicity of local practitioners, the quality of our program has been greatly enhanced. The willingness of local professionals to assist in course instruction, juried presentations and internships lends credibility and depth to our curriculum, creating for the student a connection between academia and professional practice. In addition, local (as well as global) service opportunities introduce concepts of public service and social responsibility to our student population.

3. We have discovered that one of the measures of success of our program is our ability to see when and where change is needed. Our faculties are not afraid of using modification and experimentation as tools. By regularly examining and evaluating the validity of the curriculum based on ABET/CIDA standards and the PUL's, industry expectations and program goals, consistent improvement can be seen. This ultimately improves overall program quality, keeping our students marketable. When the provided education is relevant and modern, students are much better prepared to enter the practicing profession, and more likely to be successful in their occupation.

While we remain confident in the distinguished quality of our program, we remain fully conscious of several areas which are in need of further strengthening and enhancement.

1. While our faculties remain diverse in background and specialty, we recognize that the credentials of our current faculty can be improved. Further professional certification and the securing of advanced degrees is desired in order to set a positive example for our student body, as well as provide faculty members with the highly developed qualifications that are required in academia. In addition, more faculties are needed to deliver an excellent education to a program of our size.

2. Upgraded equipment, software and additional resources are needed if the program is to retain a reputation as a technology leader, capable of producing students with a diverse range of abilities. Based on the speed of the development of our degree and the large number of students which we instruct, additional studio space and laboratories would greatly benefit the delivery of our curriculum, and more modern, efficient computers would ensure that student work remain accurate, competitive and appropriate. The launch of a laptop requirement for all incoming students is currently being considered, yet further development and investigation are needed.

3. A proper evaluation tool needs to be explored in order to hold the quality of student work to a high standard. While our current policy does not allow students to progress in our programs with a grade lower than a C-, the creation of a portfolio review process would further permit quality control, serve as a valuable assessment tool and assist students in understanding their level of aptitude with relation to interior design prior to graduation.

4. Continuous assessment and self-study must be completed in order to continue to improve and determine the validity of the unique degrees which we offer. Careful compliance with all CIDA standards, as well as industry expectations and program goals must continue to be maintained. Students need to benefit from persistent involvement in research and community service projects, and it is the hope of the faculty to eventually create a Bachelor's degree in Architectural Technology and a Master's degree in Interior Design in order to contribute to advance understanding of the profession and assist in the current crisis that can be witnessed regarding the lack of design educators.

The DST faculty are certain that our young program is bound for sustained success. It is through continued use of industry resources and successful assessment strategies, as well as consistent experimentation with new ideas that our program will grow to be respected and recognized within the state of Indiana, and nationally. We recognize our downfalls, and have implemented plans of action to address gaps in curriculum as well as program weaknesses in order to better prepare future graduates. It is our final conclusion that we have created a successful enterprise of elevated quality, capable of producing creative, talented individuals who will make lasting contributions to interior design and related professions.

DST Program/Department Improvements & Initiatives

The faculty and administration for the Design Technology programs have many ideas in mind with regards to future development of the curriculum and plan of study. As we have only witnessed five graduating classes from our INTR B.S. degree program, we are aware that continuous examination and improvements will be needed as we observe consistent trends emerging among graduates. We estimate that changes will occur at gradual paces, with critical changes taking priority over tedious initiatives. In addition, common trends and changes within the industry, including future changes among CIDA standards, will most certainly affect that way in which we deliver our curriculum and help us to identify new goals and educational objectives.

After thorough self-study, specific gaps in our curriculum have been identified and addressed. While many of these gaps simply require the addition of educational material in our course delivery and student deliverables, some changes to the overall plan of study have been determined to be appropriate.

1. It has been established that the courses which our students take in the construction technology department have been delivered in a somewhat sporadic way in recent semesters, leading us to the decision to bring those courses into our own department in order to more accurately control and deliver material in an effective way. For this reason, courses which previously held the prefix "CNT" will now be annotated as "ART" courses, with the intention to keep the numbering and placement of the courses similar to their current locations. This is not to say that the course objectives and the construction technology focus will be lost from these courses. We intend to retain the basic deliverables and material in the course while accentuating the relationship between the interior design and construction professions.

2. It was noted upon examination of student work that earlier exposure to computer graphics related skills would provide more advanced graphic communication skills to be utilized by our students earlier in their work. For this reason, we have added an additional graphics course to our plan of study in the second semester (CGT 117). Also, the prerequisites and numbering of all existing computer graphics courses has been analyzed and revised to ensure that students receive certain skill sets in the proper chronological order.

3. We discovered an exceptional amount of strength and overlap within many of our senior level courses. Upon close examination of our senior thesis and capstone courses, significant repetition of skills, research and ideas were revealed. For this reason, we are considering combining these two courses into one, 5 credit hour class. The course will remain highly intense, yet will allow for some flexibility in research topics and presentation technique without repeating ideas. As we also discovered a similar phenomenon occurring between our sustainable design course and our building systems course, we are exploring the possibility of combining these courses into a 4 credit hour class as well.

4. We have revised our curriculum to condense and simplify to 125 credit hours. This is a drop of 10 credit hours from the previous plan of study.

5. We have implemented an evaluation tool of required portfolio review to our program beginning in fall 2008. This requirement will serve as an early introduction to business practices as well as explore acceptable ways to organize student and professional work for presentation to potential employers and clients, and serve as a feedback tool to those students who are and are not prepared to continue in the program.

A timeline for the implementation of these changes was considered, and the majority of these alterations have been made to the plan of study for the fall 2008 semester.

Looking toward the future, several possible changes can be foreseen. Faculty transitions are of great concern considering the current lack of qualified interior design educators that is being witnessed nation wide. It is our hope that we are able to hire additional faculty to further enhance the quality of our program without losing any of our current personnel. Also, reorganization efforts within the school may result in some changes of leadership or departmental association in the near future. In this case, certainly every possible attempt will be made to retain consistency and even improve our location within the organizational structure. Furthermore, an indication of possible budget cuts within the state and University may require solicitation of alternate funding and resources in order to sustain our program. As technology progresses, there is also a possibility that a higher demand in online course delivery or the creation of advanced tools for the industry may require us to re-design our curriculum. In any event, we remain fully prepared to address these issues as they arise with a positive attitude and with resolution to move forward in whichever direction is deemed necessary.

The composition of our faculty has had a direct impact on the way in which we handle challenges and address industry and educational trends. We remain a close group of colleagues who retain open communication and utilize teamwork to work through both day-to-day and ongoing issues that arise. However, we not only rely on internal opinions and discussion, but solicit the feedback of practitioners and advisory board members on a regular basis to ensure that our decisions are in the best interest of the students and industry. When challenges occur, careful analysis and open dialog transpire, allowing for a large amount of input prior to decisions being made. Likewise, when new trends are observed, research and surveillance take place ensuring that any changes or implementations to the program occur only after consideration of all factors.

DEPARTMENT OF MECHANICAL ENGINEERING 2007 ASSESSMENT REPORT

ME Assessment Web Site: http://www.engr.iupui.edu/me/fassessment.shtml

Prepared by: H.U. Akay and Jie Chen

June 2, 2008

Preamble

The Department of Mechanical Engineering has had an assessment process in place since the fall of 2000 to ensure continuous evaluation and improvement of its undergraduate program. The requirements of the Accreditation Board for Engineering and Technology (ABET) together with the assessment processes of IUPUI and the School of Engineering and Technology are the guiding factors of this process. As part of the assessment process, the faculty developed the Undergraduate Program Outcomes and Undergraduate Program Objectives. While the Program Outcomes describe the competencies students are expected to master prior to graduation, the Program Objectives depict skills that students are expected to possess after working a few years following graduation. Our Bachelor of Science in Mechanical Engineering is currently accredited from ABET until 2011. Our program will undergo a re-accreditation review in 2010.

Undergraduate Program Outcomes of the Department of Mechanical Engineering

The Undergraduate Program Outcomes of the department are consistent with the criteria set by the Accreditation Board for Engineering and Technology (ABET). While using the ABET criteria, the faculty established the program outcomes with consideration given to early feedback provided by employers and alumni and guidance of eight Undergraduate Program Objectives, which are described in the section below. Students in the Mechanical Engineering program by the time of graduation are expected to be able to:

a. Demonstrate and apply knowledge of mathematics, science, and engineering with:
- **a1.** Knowledge in chemistry and calculus-based physics in depth [1, 5]
- **a2.** Mathematics through multivariate calculus, differential equations, and linear algebra [1, 5]
- **a3.** Probability and statistics [1, 5]
- **a4.** Mechanical engineering sciences: solid mechanics, fluid-thermal science, material science [1, 4, 5]

b. Design and conduct experiments methodically, analyze data, and interpret results [1, 5]

c. Design a system, component, or process to meet desired needs with applications to:
- **c1.** Mechanical systems [4]
- **c2**. Thermal systems [4]

d. Function in teams to carry out multidisciplinary projects [4, 8]

e. Identify, formulate, and solve engineering problems [5]

f. Understand professional and ethical responsibilities [2, 7]

g. Communicate effectively, in writing and orally [6]

h. Understand the impact of engineering solutions in a global and societal context through broad education [7]

i. Recognize the need to engage in lifelong learning [3]

j. Demonstrate knowledge of contemporary issues [2]

k. Use the techniques, skills, and modern tools of engineering effectively and correctly in engineering practice with:
- **k1.** Mechanical engineering analysis tools (e.g., ANSYS, ProMechanica, etc.) [4, 5, 8]
- **k2.** Engineering design and manufacturing tools (e.g., ProE) [4, 5, 8]
- **k3.** Internet and library resources [3, 8]
- **k4.** Mathematical computing and analysis tools (e.g., Matlab, Excel, LabView, Minitab, etc.) [4, 5, 8]

The numbers in the brackets above correspond to the Undergraduate Program Objectives. Thus, each Undergraduate Program Outcome is linked to one or more Undergraduate Program Objective.

Undergraduate Program Objectives of the Department of Mechanical Engineering

The Undergraduate Program Objectives, developed by the department's Assessment and Undergraduate Education Committees, are in accordance with ABET standards, as well as the mission of the department. Consultation with the faculty and feedback from alumni and industry were also taken into consideration when establishing these objectives, which were designed to educate undergraduate students who should be capable during the first few years after graduation of:

1. Demonstrate excellent technical capabilities in mechanical engineering and related fields
2. Be responsible citizens
3. Continue their professional advancement through life-long learning
4. Apply sound design methodology in multidisciplinary fields of mechanical engineering
5. Competently use mathematical methods, engineering analysis and computations, and measurement and instrumentation techniques
6. Practice effective oral and written communication skills
7. Understand the environmental, ethical, diversity, cultural, and contemporary aspects of their work
8. Work collaboratively and effectively in engineering and manufacturing industries

Assessment Tools

The department has developed several tools for continuous evaluation and improvement of its undergraduate program. The tools employed are categorized into direct and indirect evidence categories, as described below.

The measures used in the indirect evidence category include:

1. Course learning outcomes surveys in all courses conducted at the end of each semester to determine self-assessment of students on how well the course outcomes are met
2. Exit surveys on program outcomes conducted at the time of graduation to obtain self-assessment of the graduates on how well the program outcomes are met
3. Annual student satisfaction survey conducted annually to determine student satisfaction with the program
4. Feedback from the Undergraduate Student Advisory Board that provides input on student satisfaction and needs
5. Alumni survey for measuring the impact of program outcomes in the performance of graduates

The tools in the direct evidence category consist of:

1. Feedback from the Industrial Advisory Board that provides input on performance and expected qualifications of graduates
2. Employer survey for measuring effectiveness of the program outcomes in the work force
3. Fundamentals of Engineering (FE) exam results on students who take it in their senior year. This is a standardized national exam, which gives comparisons of our students' scores against the national averages
4. Feedback forms for course outcomes survey results completed and submitted at the end of each semester by the faculty teaching the courses
5. Jury evaluations in key courses that involve final project reports or presentations in front of an audience of faculty, industry guests, and fellow students
6. Instructor's assessment of student performance in course outcomes via evaluation of key exams, projects and homework against the course outcomes

7. Industry feedback of performance of our coops and interns. A new process has been initiated at the School level, which is expected to give good data on our student's performance in the workplace

Collection and assessment of these data are continuing and the appropriate enhancements are being made regularly.

Assessment Process

This assessment process can be seen in **Fig. 1**. The process ensures that the feedbacks from our constituencies are carefully reviewed and be considered in program improvement. When obtaining feedback, we use four main sources of input: Student, Faculty, Industry, and Alumni. While each of these groups is used for a different reason, they are all constituencies we strive to serve. The involvement of the constituencies, flow of information and the approval process are shown in **Fig. 2**. This figure also depicts the responsibilities of each of the governing bodies. After the data and feedback is evaluated, any necessary changes are recorded and implemented in the following semester.

Recent Results and Changes

With the assessment measures that are in place, we are continuously monitoring the effectiveness of the curriculum established in fall 2003. The following are the findings in 2007/08:

1. Course Learning Outcomes Surveys ask students to rate their self-assessment of mastering learning outcomes, specific to each course, using a 5 point scale. The departmental goal for the semester averages on these surveys is to be above a 3.75 out 5. We use the 3.75 threshold, because it corresponds to the mid point between good and very good. After receiving the surveys, instructors are required to respond the results and propose changes to address the weaker areas. The changes are normally implemented in the following semester. The dynamic process will help us reach our goal. The department has been successful in reaching our goal in 14 out of 16 semesters, **Fig. 3**. In addition, we strive to keep at least 70% of approximately 300 course learning outcomes above the 3.75 threshold. Although there were fluctuations, the goal has been achieved in recent semesters. The goal has been reached in 8 out of 16 semesters (Figure 3). More than 85% course outcomes exceeded 3.75 rating in the past academic year, which demonstrated that the assessment process has positive impact on student learning. This is an area where we will continue to work hard in order to improve.
2. The exit survey represents our graduates's feeling about the ME program. We strive to keep the semester averages of the Exit Surveys above a 3.75. This criterion has been reached consistently since spring 2001. Although we fell from the highest average (4.41) in spring 2006 to the lowest (3.77) in fall 2006, **Fig. 4**, the average score has been increasing in this academic year. The data will be continually monitored by the Undergraduate Education and Assessment Committee, as well as the Faculty. However, the overall cumulative average for these surveys remains well above a 3.75.
3. The Annual Student Satisfaction Survey is given to all sophomores, juniors, and seniors during the spring semester. Each student only fills out one survey, which assesses their satisfaction with the undergraduate program and the department. While the 3.75 goal has not been met since the survey originated in spring 2001, we have demonstrated that the score has been improving. The average of this survey went from the lowest (3.05) in spring 2006 to the highest (3.52) in spring 2008 **(Fig. 5)** Average scores of each question for the surveys conducted annually since 2001 are tabulated in Table 1, showing a noticeable improvement in evaluation of quality of ME education (3.93). We recognized that there would be room for improvement in all categories. We will continue working towards attaining the 3.75 threshold.
4. The student satisfaction survey results seen in Table 1 led to:

a) More tutoring sessions, including volunteer peer-tutoring, have been instituted for lower level courses in the curriculum. The effects have been assessed by interviewing the tutors.
b) A learning center was established for facilitating the tutoring sessions. The center was sponsored by the department. The center was organized and staffed by the student organizations. The center was assessed by the satisfactory survey.
c) Recitation schedules have been adjusted to meet the student needs. More recitations were conducted by the course instructors. The effects have been assessed in the Student Satisfaction Survey
d) More emphasis has been placed upon co-op, internship, and job placement services. Regular oral presentations have been scheduled each semester to assess quality.

5. Jury evaluation of capstone design projects led to:
   a) More emphasis on prototyping and evaluation.
   b) More emphasis on project management.
   c) More emphasis on project presentation.
6. Course outcomes surveys led to:
   a) Addition of term papers/technical writing exercises in certain classes to improve research and writing skills.
   b) Increased faculty supervision during the first six weeks, inter-group evaluations.
   c) Emphasis on solving more examples in various classes.

New curriculum has been developed based on the survey results. The curriculum streamlined the courses and emphasized important components, such as statistics and contemporary issues, such as six sigma in engineering.

Summary

Assessment is a constant process in the Department of Mechanical Engineering, as feedback is collected every semester using the tools and methods described earlier. After the data and feedback are evaluated, any necessary changes are recorded and implemented in the following semester. While our program quality is continuing to improve, there are several changes that are currently under consideration for the future including:

a) A mechatronics track together with the ECE department
b) FE exam requirement for standardized test for all undergraduate students

Table 1. Student Satisfaction Survey Results

Survey Question	Spring 2001 (N=60)	Spring 2002 (N=69)	Spring 2003 (N=83)	Spring 2004 (N=69)	Spring 2005 (N=62)	Spring 2006 (N=97)	Spring 2007 (N=123)	Spring 2008 (N=124)
1. Quality of Instruction	3.61	3.58	3.71	3.54	3.36	3.33	3.85	3.87
2. Quality of ME experimental labs (ME 272, 310, 314, 340, 372)	3.13	3.35	3.15	3.08	2.93	3.13	3.30	3.10
3. Quality of ME design courses (ME 262, 372, 414, 462)	3.45	3.55	3.44	3.17	2.90	3.21	3.58	3.47
4. Effectiveness of recitations hours (ME 200, ME 262, ME 270, Me 274, ME 372)							3.07	2.74
5. Quality of computing facilities for design and computational labs	3.16	3.38	3.62	3.55	3.34	3.23	3.60	3.67
6. Quality of advising and help with the POS	3.27	3.27	3.20	3.30	3.22	3.07	3.45	3.39
7. Scheduling of courses/classes	3.28	3.56	3.19	3.47	3.36	3.38	3.33	3.44
8. Classroom environments conducive to learning	3.68	3.75	3.96	3.77	3.65	3.56	3.80	3.93
9. Career planning assistance, job placement, and professional skills development	2.96	2.89	2.80	3.00	2.79	3.20	3.44	3.47
10. Opportunities for networking with fellow students and faculty through professional societies	3.81	3.95	3.33	3.54	3.06	3.17	3.54	3.58
11. Quality of help from the department staff (non faculty)						3.74	3.64	3.75
12. Quality of tutoring services offered by the department and student groups							3.33	3.24
13. Overall professional learning experience	3.65	3.58	3.65	3.58	3.39	3.27	3.65	3.71
14. Overall quality of ME education	**3.75**	**3.82**	**3.82**	**3.64**	**3.62**	**3.36**	**3.78**	**3.93**

Note: All items were assessed using a 5 point scale, with 1= Least Satisfactory, 5= Most Satisfactory. Sophomore, Junior, and Senior results were combined.

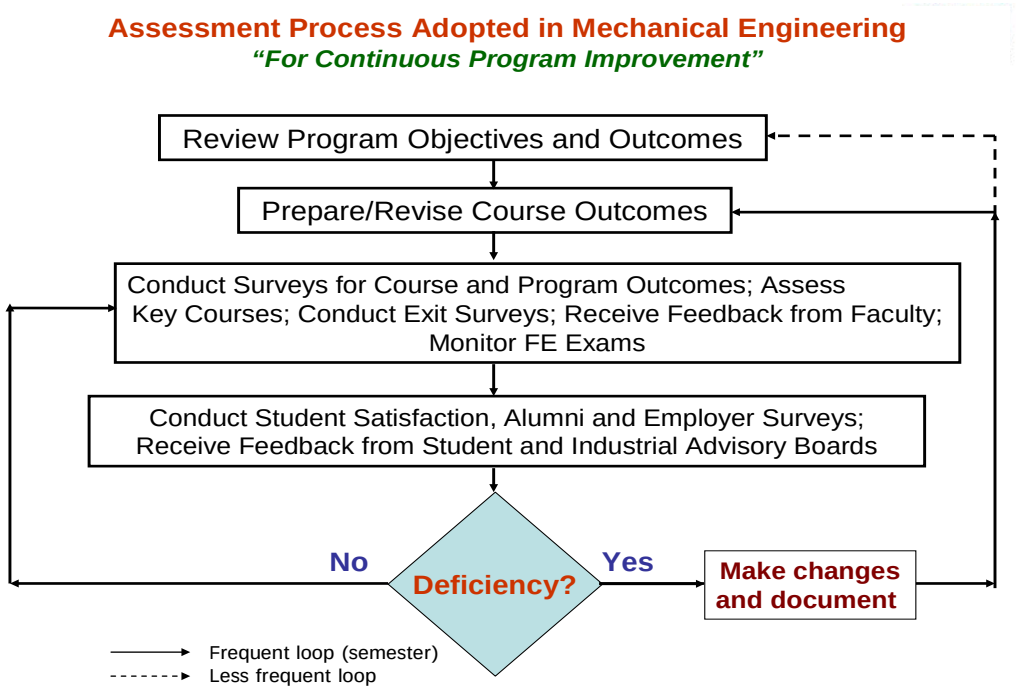


Figure 1. Department of Mechanical Engineering Assessment Process

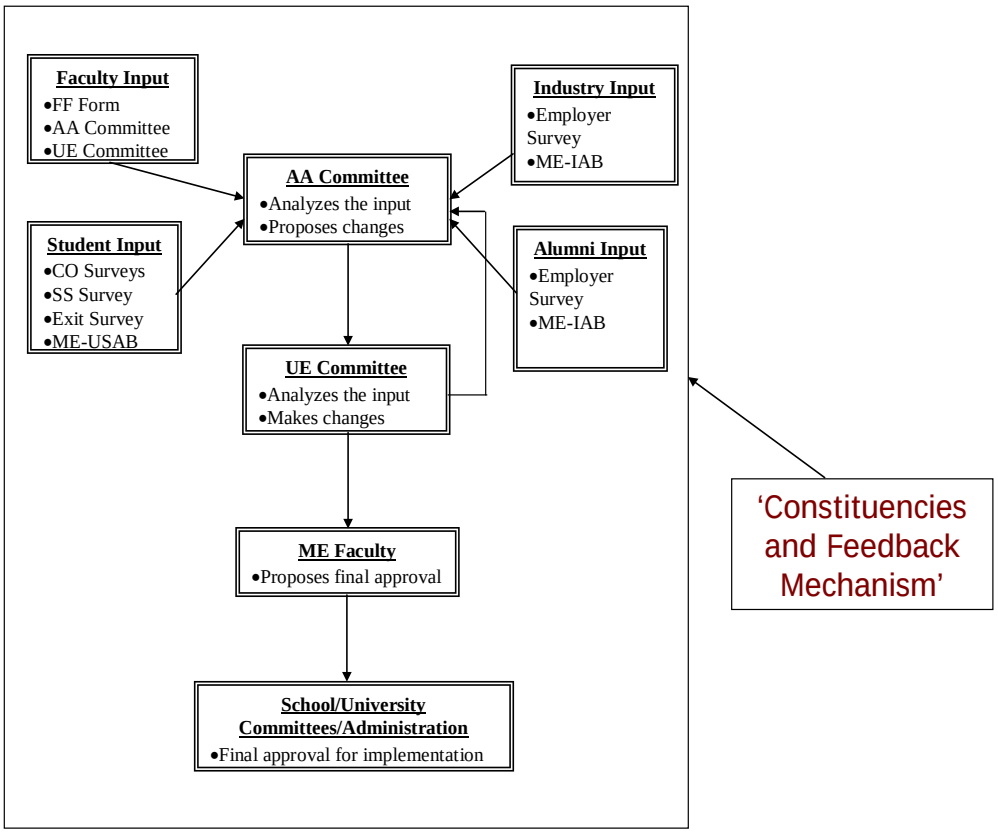


Figure 2. Categorization of Input and Process for Analysis of Feedback

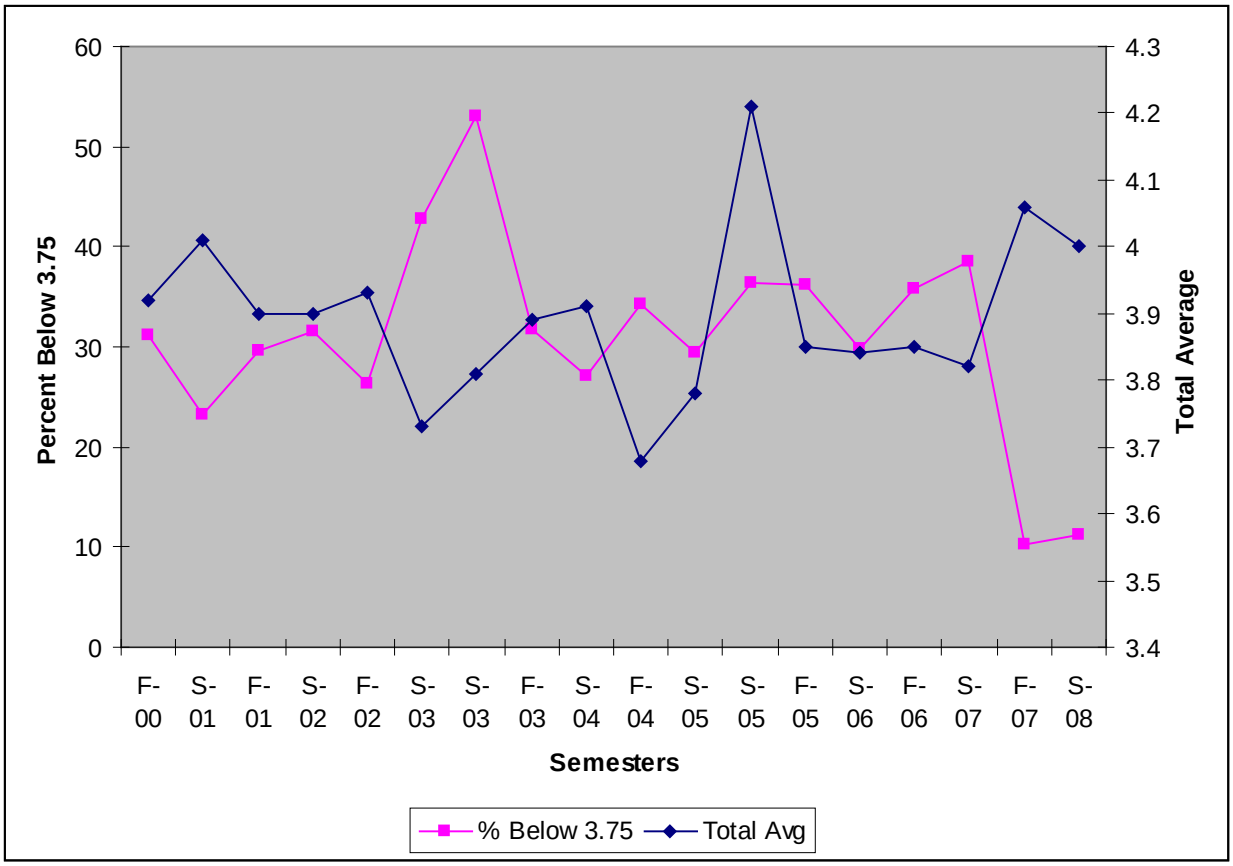


Figure 3. Course Learning Outcome Survey Results in terms of Total Average and Percent Below 3.75

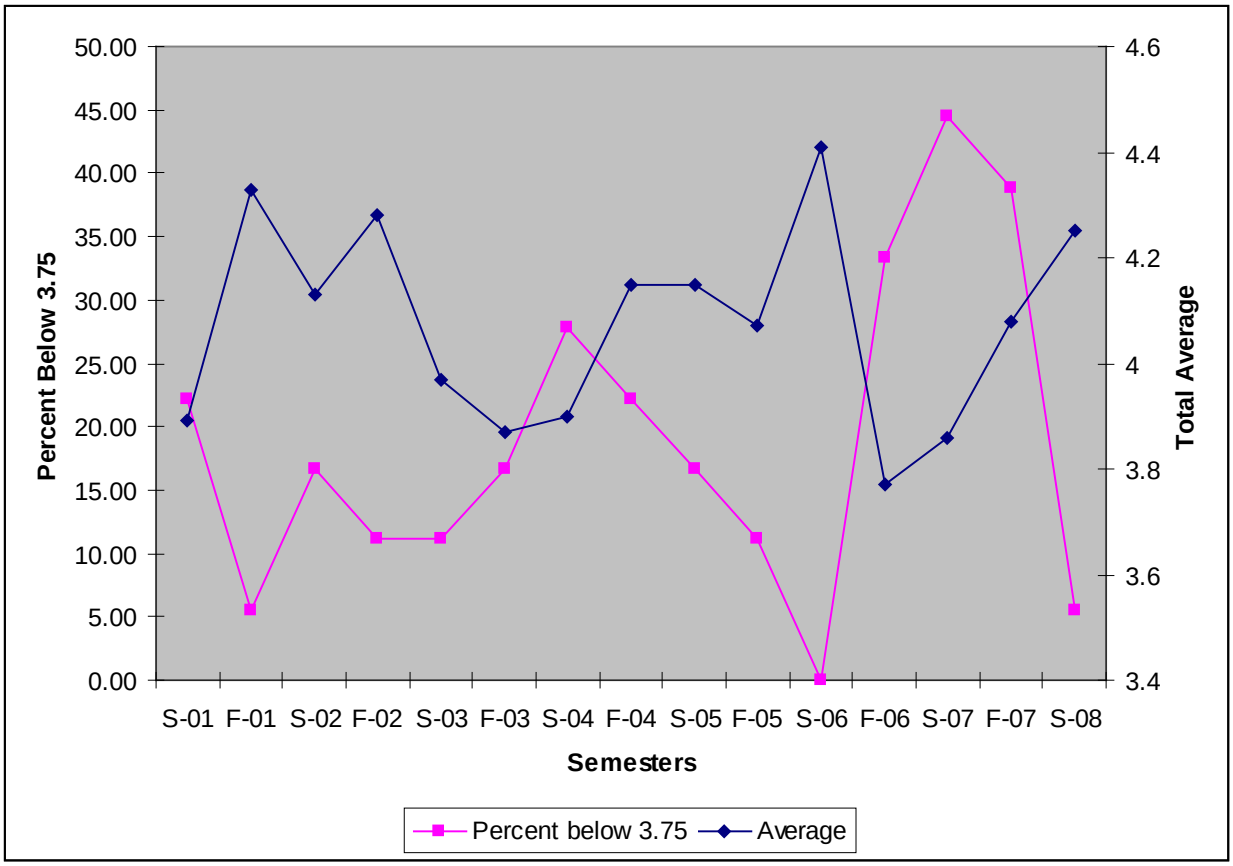


Figure 4 Program Outcome (Exit) Survey Results in terms of Percent Below 3.75 and Total Average

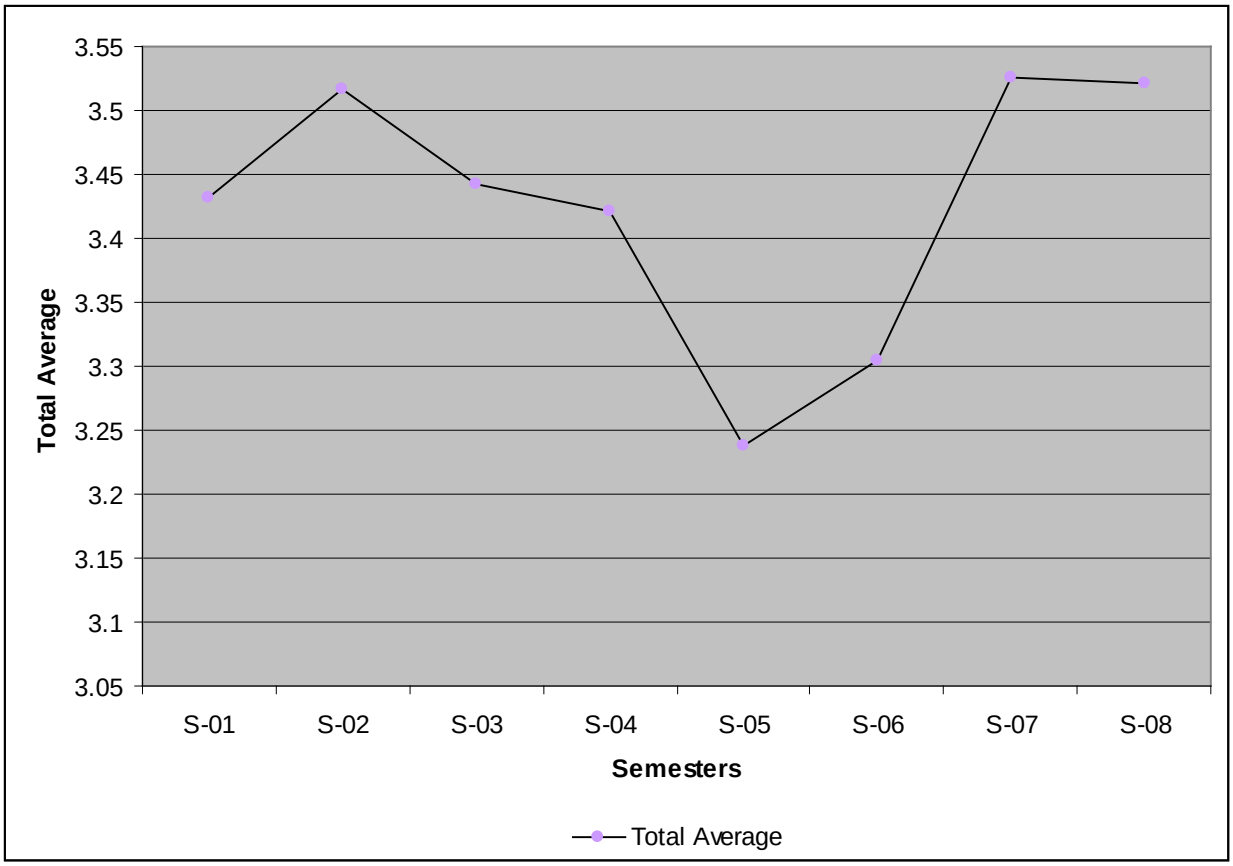


Figure 5. Semester Averages of Annual Student Satisfaction Surveys

Department of Mechanical Engineering Technology
2007 Assessment Report

Summary

Vision of the Department of Mechanical Engineering Technology

The MET Department will ensure that its graduates are proficient in the principles of science and engineering as they relate to practical applications required to meet the demands of industry in Indiana, the nation, and the world. The MET Department will be recognized as an innovative leader through its diverse faculty, staff, and students, and its excellence in learning, discovery, and engagement.

Mission of the Department of Mechanical Engineering Technology

The mission of the Department of Mechanical Engineering Technology (MET) at IUPUI is to educate and graduate students who will become the finest practitioners, managers, and leaders in Mechanical Engineering Technology.

Constituents

- MET Faculty
- MET Students
- MET Alumni
- Industrial Advisory Board (IAB) and Potential Employers of MET Students
- National and International Professional Societies
- The School and University

Early Career Objectives

Consistent with the criteria set by the Accreditation Board for Engineering and Technology (ABET), the Program Educational Objectives of the Department of Mechanical Engineering Technology are, "*To produce graduates who, during the first few years of professional practice, will*:

1. Show their ability to solve problems related to the workplace through their application of excellent technical capabilities in mechanical engineering technology and related supporting fields.
2. Be responsible citizens in the workplace through their demonstrated ethical and professional conduct and appreciation for diversity in its various forms.
3. Continue their professional advancement through life-long learning opportunities, in-service training and engagement with professional organizations.
4. Practice effective oral and written communication skills.
5. Show their ability to address diverse environmental, ethical, diversity, cultural, and contemporary aspects of their work
6. Work collaboratively and effectively in engineering and manufacturing industries as a liaison between professional engineers and manufacturing personnel
7. Have the ability to function both as an individual, and within the dynamics of a group environment, in the workplace

Program Learning Outcomes

The MET program at IUPUI has established 11 outcomes to ensure its graduates are equipped to accomplish the expected objectives. These outcomes require each student to show competency as detailed below, and reflect those established by ABET. Graduates of the Mechanical Engineering Technology Baccalaureate program will:

1. Demonstrate an appropriate mastery of the knowledge, techniques, skills, and modern tools of their discipline within designated courses which provide laboratory components,
2. Apply current knowledge in mathematics, science, engineering and technology, and recognize emerging applications in these areas,
3. Conduct experiments, analyze and interpret experimental data, and apply experimental parameters in order to improve and/or modify processes,
4. Apply creativity in the design of systems, components, or processes within Mechanical Engineering Technology projects,
5. Function effectively as a member of a project teams, or with group projects,
6. Identify, analyze, and solve technical problems,
7. Communicate effectively in written, oral, and graphical modes,
8. Recognize the need for lifelong learning, and participate in educational and professional opportunities to expand your knowledge base
9. Understand and communicate professional, ethical, and social responsibilities as a practitioner of MET
10. Demonstrate a respect for diversity and a knowledge of contemporary professional, societal, and global issues, and
11. Demonstrate via actions a commitment to quality, timeliness, and continuous improvement

Early Career Objectives

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Assessment

Program Educational Objectives are assessed utilizing various instruments including:

1. Assessment of critical thinking, knowledge integration, oral communication skills and written communication skills from the MET Senior Design capstone course (MET 414).
2. Alumni survey for measuring the impact of program outcomes in the performance of graduates (conducted by the Office of the Dean)
3. Employer survey for measuring effectiveness of the program outcomes in the work force (conducted by the Office of the Dean)
4. Feedback from Industrial Advisory Board members at bi-annual meetings.
7. Instructor's assessment of student performance in regards to course outcomes via evaluation of specific problems on exams, projects, lab assignments (if applicable), and homework against the course outcomes.

Responsibilities and Frequency for Assessment

Assessment Tool	Responsible Party	Frequency
Assessment of Senior design projects, written report and oral presentation (MET 414).	Course Instructor	Every semester.
Alumni Survey	Office of the Dean	Once per year
Employer Survey	Office of the Dean	Once every two years
Industrial Advisory Board (IAB)	Department	Minimum of two meetings per year.
Instructor and Course Assessment	Office of the Dean	Every course each semester

Involvement of Constituencies in Assessment

Primary Constituencies	Means of Feedback
MET Faculty	Chair yearly interview Dean yearly interview (if appropriate) Results of "Student Instructor Evaluations" Semester Faculty Retreat Monthly Faculty Meeting End of Semester Reflection document for each course
MET Students	Interaction with faculty during office hours Participation in "Student Instructor Evaluations" Professional Organization Student Chapters
MET Alumni	Alumni surveys conducted through Dean's Office
Industrial Advisory Board (IAB) and Employers	Bi-annual meeting with faculty Participation as speakers in courses, jury members on Senior design projects Employer survey conducted through Dean's Office
National and International Professional Societies	Participation as officers in professional organizations Review team member for assessment organizations
School and University Senate Committees	Review of all curriculum and assessment issues at the School level Review of all curriculum issues at university level PRAC support for grants and assessment report reviews at the university level

Program Learning Outcomes

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5. Function effectively as a member of a project teams, or with group projects,
6. Identify, analyze, and solve technical problems,
7. Communicate effectively in written, oral, and graphical modes,
8. Recognize the need for lifelong learning, and participate in educational and professional opportunities to expand your knowledge base
9. Understand and communicate professional, ethical, and social responsibilities as a practitioner of MET
10. Demonstrate a respect for diversity and a knowledge of contemporary professional, societal, and global issues, and
11. Demonstrate via actions a commitment to quality, timeliness, and continuous improvement

Process to Assess Program Learning Outcomes

Program Educational Objectives are assessed concurrently with Program Education Outcomes utilizing various instruments listed in the previous section. Additionally, Program Learning Outcomes are mapped to show the relationship between each course and program outcomes.

This mapping process also helps ensure that the following aspects of the curriculum are supported:

a. Identifies any course where outcomes may be lacking, or further support could be added
b. Identifies any overlap of outcomes in multiple courses that can be eliminated or revised
c. Gives a preliminary grasp if outcomes and objectives are being matched appropriately through MET or supporting courses offered
d. Provides a visual representation of the curriculum which easily shows the relationship of outcomes to general topic areas

	MET Program Outcome										
Course	**a**	**b**	**c**	**d**	**e**	**f**	**g**	**h**	**i**	**j**	**k**
MET 102	x	x					x				
MET 105	x		x		x	x	x		x		x
MET 111	x	x	x	x	x	x	x				
MET 141	x	x	x		x	x	x	x	x	x	
MET 142	x	x	x		x		x	x	x	x	
MET 211	x	x	x		x	x	x				
MET 213	x		x	x	x	x	x				
MET 214		x				x	x		x		
MET 220	x	x	x			x	x				
MET 230	x	x				x					
MET 240	x	x	x	x	x		x		x	x	
MET 242	x	x	x		x	x	x	x	x		
MET 310	x	x	x			x	x	x			x
MET 320	x	x				x					
MET 328	x	x		x			x				
MET 344	x	x				x			x	x	
MET 350	x	x				x					
MET 384	x	x	x	x	x	x	x				
MET 414		x		x	x	x	x		x		x
MET 426	x	x		x			x				
CGT 110	x	x					x				
IET 104	x	x				x				x	
IET 150	x	x	x			x					x
IET 350	x	x			x	x					x
ECET 116	x	x	x			x					
MATH 153, 154, 221, 222	x										
CHEM-C 101,121	x		x								
PHYS 218, 219	x		x								
ENG-W 131							x				
COMM-R 110							x				
TCM 220							x				
TCM 340							x		x		
TCM 370							x			x	
Technical Electives*	x	x	x			x					
Social Science / Humanities Electives*							x			x	
* (Student may choose from a list of approved courses.)											

Additionally, Program Educational Outcomes are assessed through the use of end of the semester reflection documents prepared by faculty.

Mechanical Engineering Technology Program
End of Semester Reflection

Course# **MET 111** Reflection by: **Pete Hylton** Semester: **Spring 2007**

1. Are there course objectives that need to be deleted, added, updated or revised? Are there any course objectives or other course materials that a significant number of students did not adequately comprehend? **No**
    a. What changes were made?
    b. Why? (be specific)
    c. Which course objectives were affected?
    d. Comments on course objectives for which students did not meet your expectations.

2. Comment on course assessment assignments where students did not meet your expectations. **Lab reports were weaker than past semesters.**

3. Was the textbook (or course notes) adequate to meet the goals of the course? Is there a need to actively pursue another text? **Yes**
    a. What changes were made?
    b. Why? (be specific)
    c. Which course objectives were affected?

4. Does the course sufficiently challenge or overly challenge students? **Fine**
    a. What changes were made?
    b. Why? (be specific)
    c. Which course objectives were affected?

5. Comment on anything new tried in the course that worked or did not work. Indicate if it should be continued. This can include new course materials or teaching techniques. **n/a**
    a. What changes were made?
    b. Why? (be specific)
    c. Which course objectives were affected?

6. Did the laboratory exercises support course objectives and were the students sufficiently engaged by the laboratory assignments? **Yes, but see item 2.**
    a. What changes were made?
    b. Why? (be specific)
    c. Which course objectives were affected?

7. Are there laboratory assignments that did not work properly, need rewriting to remove ambiguities, or need updating for new technology? **No**
    a. What changes were made?
    b. Why? (be specific)
    c. Which course objectives were affected?

8. Is there laboratory equipment or laboratory software used for the course that needs to be replaced, updated or better maintained? **Improved equipment would be beneficial.**
    a. What changes were made?
    b. Why? (be specific)
    c. Which course objectives were affected?

Mechanical Engineering Technology Program
End of Semester Reflection

Course# **MET 213** Reflection by: **Pete Hylton** Semester: **Spring 2007**

1. Are there course objectives that need to be deleted, added, updated or revised? Are there any course objectives or other course materials that a significant number of students did not adequately comprehend? **No**

   In addition, relating to this topic . . .
   a. What changes were made?
   b. Why? (be specific)
   c. Which course objectives were affected?
   d. Comments on course objectives for which students did not meet your expectations.

2. Comment on course assessment assignments where students did not meet your expectations. **None**

3. Was the textbook (or course notes) adequate to meet the goals of the course? Is there a need to actively pursue another text? **Yes**
   a. What changes were made?
   b. Why? (be specific)
   c. Which course objectives were affected?

4. Does the course sufficiently challenge or overly challenge students? **Fine**
   a. What changes were made?
   b. Why? (be specific)
   c. Which course objectives were affected?

5. Comment on anything new tried in the course that worked or did not work. Indicate if it should be continued. This can include new course materials or teaching techniques. **This semester the lectures were taken on-line so we only met once per week. The experiment worked fairly-well but needs refinement.**
   a. What changes were made?
   b. Why? (be specific)
   c. Which course objectives were affected?

6. Did the laboratory exercises support course objectives and were the students sufficiently engaged by the laboratory assignments? **Yes**
   a. What changes were made?
   b. Why? (be specific)
   c. Which course objectives were affected?

7. Are there laboratory assignments that did not work properly, need rewriting to remove ambiguities, or need updating for new technology? **No**
   a. What changes were made?
   b. Why? (be specific)
   c. Which course objectives were affected?

8. Is there laboratory equipment or laboratory software used for the course that needs to be replaced, updated or better maintained? **Okay**

a. What changes were made?
b. Why? (be specific)
c. Which course objectives were affected?

Mechanical Engineering Technology Program
End of Semester Reflection

Course# **MET 214** Reflection by: **Jack Zecher** Semester: **Spring 2007**

1. Are there course objectives that need to be deleted, added, updated or revised? Are there any course objectives or other course materials that a significant number of students did not adequately comprehend?
   No, course objectives do not need to be changed.

   In addition, relating to this topic . . .
   a. What changes were made? **The topic of mapping between Mohr's stress coordinate system and the physical part's coordinate system (x,y) was stressed during lecture and additional hw problems on this topic were made**
   b. Why? (be specific) **Previous semester exams revealed that many students did not understand this topic**
   c. Which course objectives were affected? **1. Students can use Mohr's circle to determine principal stresses and angles**
   d. Comments on course objectives for which students did not meet your expectations.

2. Comment on course assessment assignments where students did not meet your expectations.

3. Was the textbook (or course notes) adequate to meet the goals of the course? Is there a need to actively pursue another text? **The text is adequate.**
   a. What changes were made? **Handout are provided in the areas of 3-D moment diagrams**
   b. Why? (be specific) **The text does not show shear and moment diagrams, resulting from gear and v-belt forces on shafts using 3-D isometric images.**
   c. Which course objectives were affected? **6. Students can calculate various design parameters of V-belts, spur gears, gear trains, and clutches and brakes.**

4. Does the course sufficiently challenge or overly challenge students?
   Students are sufficiently challenged.
   a. What changes were made?
   b. Why? (be specific)
   c. Which course objectives were affected?

5. Comment on anything new tried in the course that worked or did not work. Indicate if it should be continued. This can include new course materials or teaching techniques.
   a. What changes were made?
   b. Why? (be specific)
   c. Which course objectives were affected?

6. Did the laboratory exercises support course objectives and were the students sufficiently engaged by the laboratory assignments? **There is not a lab in this course.**

a. What changes were made?
b. Why? (be specific)
c. Which course objectives were affected?

7. Are there laboratory assignments that did not work properly, need rewriting to remove ambiguities, or need updating for new technology? **There is not a lab in this course.**
    a. What changes were made?
    b. Why? (be specific)
    c. Which course objectives were affected?

8. Is there laboratory equipment or laboratory software used for the course that needs to be replaced, updated or better maintained? **There is not a lab in this course.**
    a. What changes were made?
    b. Why? (be specific)
    c. Which course objectives were affected?

Mechanical Engineering Technology Program
End of Semester Reflection

Course # **MET 242 Mfg Processes II** Semester **Fall 2007**

2. Are there course objectives that need to be deleted, added, updated or revised? Are there any course objectives or other course materials that a significant number of students did not adequately comprehend? **None identified.**

    In addition, relating to this topic . . .
    e. What changes were made? **CNC programming laboratory was revised and additional lecture materials added.**
    f. Why? (be specific) **Clarify requirements and methods.**
    g. Which course objectives were affected?
    h. Comments on course objectives for which students did not meet your expectations.

2. Comment on course assessment assignments where students did not meet your expectations. **Writing quality on laboratory reports does not consistently meet college level work.**

3. Was the textbook (or course notes) adequate to meet the goals of the course? Is there a need to actively pursue another text? **No**
    d. What changes were made?
    e. Why? (be specific)
    f. Which course objectives were affected?

4. Does the course sufficiently challenge or overly challenge students? **Yes**
    d. What changes were made?
    e. Why? (be specific)
    f. Which course objectives were affected?

5. Comment on anything new tried in the course that worked or did not work. Indicate if it should be continued. This can include new course materials or teaching techniques. **Online final exam not an appropriate tool.**

d. What changes were made? **In class final exam to be used during spring semester.**
e. Why? (be specific)
f. Which course objectives were affected?

6. Did the laboratory exercises support course objectives and were the students sufficiently engaged by the laboratory assignments? **Yes**
    d. What changes were made?
    e. Why? (be specific)
    f. Which course objectives were affected?

7. Are there laboratory assignments that did not work properly, need rewriting to remove ambiguities, or need updating for new technology? **None identified.**
    d. What changes were made?
    e. Why? (be specific)
    f. Which course objectives were affected?

8. Is there laboratory equipment or laboratory software used for the course that needs to be replaced, updated or better maintained? **Equipment is old and worn-out – replacement of existing equipment is needed and new technologies need to be implemented.**
    d. What changes were made? **None**
    e. Why? (be specific) **Insufficient funds.**
    f. Which course objectives were affected?

Mechanical Engineering Technology Program
End of Semester Reflection

Course# **MET 310** Reflection by: **Jack Zecher** Semester: **Spring 2007**

1. Are there course objectives that need to be deleted, added, updated or revised? Are there any course objectives or other course materials that a significant number of students did not adequately comprehend? **The objective: "Use the Superdraw program to construct FEA models", needs to be revised to: "Use the DesignModeler program to construct FEA models"**

    In addition, relating to this topic . . .
    a. What changes were made? **The software used this semester was changed to Ansys Workbench**
    b. Why? (be specific) **Ansys is used more wildly in industry than the previous software (Algor)**
    c. Which course objectives were affected? **(see #1 above)**
    d. Comments on course objectives for which students did not meet your expectations.

2. Comment on course assessment assignments where students did not meet your expectations. **When students were asked to compare beam analysis models with 3_D solid models; it became apparent that many students did not understand the different in stress types: such as von Mises and Normal stress**

3. Was the textbook (or course notes) adequate to meet the goals of the course? Is there a need to actively pursue another text? **The text was not adequate.**

a. What changes were made? **A new text had to be used this semester in order to support the new software**
b. Why? (be specific) **The are currently no Ansys workbench oriented texts that also include modeling FEA techniques**
c. Which course objectives were affected?

4. Does the course sufficiently challenge or overly challenge students? **Students are sufficiently challenged.**
    a. What changes were made?
    b. Why? (be specific)
    c. Which course objectives were affected?

5. Comment on anything new tried in the course that worked or did not work. Indicate if it should be continued. This can include new course materials or teaching techniques.
    a. What changes were made?
    b. Why? (be specific)
    c. Which course objectives were affected?

6. Did the laboratory exercises support course objectives and were the students sufficiently engaged by the laboratory assignments? **Yes, the lab assignments are fully integrated with the lectured topics.**
    a. What changes were made? **All of the lab assignments were changed to facilitate use of the new software**
    b. Why? (be specific)
    c. Which course objectives were affected?

7. Are there laboratory assignments that did not work properly, need rewriting to remove ambiguities, or need updating for new technology? **Three lab assignments were not completed because of network licenses problems during the semester- which caused the software to not work during these three lab periods**
    a. What changes were made?
    b. Why? (be specific)
    c. Which course objectives were affected?

8. Is there laboratory equipment or laboratory software used for the course that needs to be replaced, updated or better maintained? **A new text is currently be written which will support both the lectures and labs in this course**
    a. What changes were made?
    b. Why? (be specific)
    c. Which course objectives were affected?

Mechanical Engineering Technology Program
End of Semester Reflection

Course# **MET 350** Reflection by: **Jack Zecher** Semester: **Spring 2007**

1. Are there course objectives that need to be deleted, added, updated or revised? Are there any course objectives or other course materials that a significant number of students did not adequately comprehend?

No, course objectives do not need to be changed.

In addition, relating to this topic . . .

a. What changes were made? **The use of spreadsheet analysis of series pipe systems was added**
b. Why? (be specific) **It provided a computational tool which allowed additional insight in the solution of head loss**
c. Which course objectives were affected?
d. Comments on course objectives for which students did not meet your expectations.

2. Comment on course assessment assignments where students did not meet your expectations. **none**

3. Was the textbook (or course notes) adequate to meet the goals of the course? Is there a need to actively pursue another text? **The text is adequate**
    a. What changes were made?
    b. Why? (be specific)
    c. Which course objectives were affected?

4. Does the course sufficiently challenge or overly challenge students? **Students are sufficiently challenged.**
    a. What changes were made?
    b. Why? (be specific)
    c. Which course objectives were affected?

5. Comment on anything new tried in the course that worked or did not work. Indicate if it should be continued. This can include new course materials or teaching techniques.
    a. What changes were made? **Spreadsheet analysis of series pipe systems was added**
    b. Why? (be specific) **It provided an additional learning resource**
    c. Which course objectives were affected?

6. Did the laboratory exercises support course objectives and were the students sufficiently engaged by the laboratory assignments? **There is not a lab in this course.**
    a. What changes were made?
    b. Why? (be specific)
    c. Which course objectives were affected?

7. Are there laboratory assignments that did not work properly, need rewriting to remove ambiguities, or need updating for new technology? **There is not a lab in this course.**
    a. What changes were made?
    b. Why? (be specific)
    c. Which course objectives were affected?

8. Is there laboratory equipment or laboratory software used for the course that needs to be replaced, updated or better maintained? **There is not a lab in this course.**
    a. What changes were made?
    b. Why? (be specific)
    c. Which course objectives were affected?

Mechanical Engineering Technology Program
End of Semester Reflection

Course# **MET 414** Reflection by: **Pete Hylton** Semester: **Spring 2007**

1. Are there course objectives that need to be deleted, added, updated or revised? Are there any course objectives or other course materials that a significant number of students did not adequately comprehend? **No**

   In addition, relating to this topic . . .
   a. What changes were made?
   b. Why? (be specific)
   c. Which course objectives were affected?
   d. Comments on course objectives for which students did not meet your expectations.

2. Comment on course assessment assignments where students did not meet your expectations. **None**

3. Was the textbook (or course notes) adequate to meet the goals of the course? Is there a need to actively pursue another text? **None**
   a. What changes were made?
   b. Why? (be specific)
   c. Which course objectives were affected?

4. Does the course sufficiently challenge or overly challenge students? **Fine**
   a. What changes were made?
   b. Why? (be specific)
   c. Which course objectives were affected?

5. Comment on anything new tried in the course that worked or did not work. Indicate if it should be continued. This can include new course materials or teaching techniques. **No**
   a. What changes were made?
   b. Why? (be specific)
   c. Which course objectives were affected?

6. Did the laboratory exercises support course objectives and were the students sufficiently engaged by the laboratory assignments? **Yes**
   a. What changes were made?
   b. Why? (be specific)
   c. Which course objectives were affected?

7. Are there laboratory assignments that did not work properly, need rewriting to remove ambiguities, or need updating for new technology? **n/a**
   a. What changes were made?
   b. Why? (be specific)
   c. Which course objectives were affected?

8. Is there laboratory equipment or laboratory software used for the course that needs to be replaced, updated or better maintained? **n/a**
   a. What changes were made?

b. Why? (be specific)
c. Which course objectives were affected?

Assessment Report, calendar year 2007:
Organizational Leadership and Supervision (OLS)
Department of Computer, Information, and Leadership Technology

The former Department of Organizational Leadership and Supervision (OLS), now part of the Department of Computer, Information, and Leadership Technology, made significant progress during calendar year 2007 in its approach to assessment of program outcomes and also noted several areas for development. Notable accomplishments include a successful proposal for a pilot program using a portfolio approach and installation of an innovative rubric to score students' reports. Areas for development include active engagement of all permanent faculty members and instructional staff in a coordinated assessment effort and integration of Principles of Undergraduate Learning (PUL) into the curriculum in the form of a ladder of skills from the 200 to the 300 to the 400-level courses.

The portfolio approach connects to the ladder of PUL skills. The task is to define appropriate competency levels for each PUL skill in a hierarchy from basic in the 200-level courses to advanced in the 400-level courses. At each level of class standing from sophomore to senior, students will be asked to supply evidence within the portfolio of having met the required competency for each PUL. Upon graduation therefore, a student should be able to display a portfolio showing competency at the basic or 200 level, the intermediate or 300 level, and the advanced or 400 level. It should be emphasized here that this effort is just a small step beyond the proposal stage.

A near term task for the department is to prepare a well defined progression of PUL skills from the sophomore level to graduation and to increase the number of pivotal assignments that are scored according to those specific PUL competencies. For example, students at each level within the curriculum should be scored on their ability to "Synthesize information to arrive at reasoned conclusions" according to the specifically defined PUL competency for that level. Greater involvement of all permanent faculty members and instructional staff is required to accomplish this task.

An example of this approach was installed during 2007 in the form of a detailed rubric for scoring student reports at the 300 level, being the intermediate range of PUL competencies. The specific language of PUL was used in a scoring sheet that was completed by the instructor and returned to students. Among competencies rated on the scoring sheet were students ability to...

- Comprehend, interpret, and analyze written text.
- Make efficient use of information resources and technology for personal and professional needs.
- Analyze complex issues and making informed decisions.
- Synthesize information to arrive at reasoned conclusions.
- Evaluate the logic, relevance, and validity of data.

and

- Use knowledge and understanding to raise and explore new questions.

A scoring rubric of this type, expressed in specific PUL terms, shows students directly how IUPUI PUL connect to scoring criteria for a specific assignment. Preliminary results show that students gain increased awareness of the IUPUI PUL and their obligation as part of the degree program to develop skill in each area. The approach to curriculum integration using progressive PUL skills is meant to augment or replace more traditional approaches that focus on inputs -such as standardized assignments, departmental exams, and joint syllabi- rather than outcomes.

TECHNICAL COMMUNICATION 2007 ASSESSMENT REPORT
Prepared by Becky Fitterling
Spring 2008

2007 Review

Executive Summary

The Technical Communication Program (TCM) continued its assessment activities during the fall semester of 2007. Data were collected from a total of 44 students, 6 from Engineering, and 38 from Technology. Trends seem to indicate that the students are performing adequately, but that we still face challenges, particularly in areas of sentence effectiveness and grammatical and mechanical accuracy. In addition, the Program needs to ensure that standards for outstanding (A range) work are firmly in place and that we have not allowed "grade creep" to take root.

Introduction

In the fall of 2008 the Technical Communication Program found a new home in the newly reorganized Department of Communication Technology. Assessment activities took place during the fall semester, where we judged the work of six engineering students (TCM 360); 27 technology students from the basic technology class (TCM 220); and 11 students from the junior level technology class (TCM 340). No data for TCM 370 were gathered in the fall semester.

A brief summary of the results follows, with a more detailed analysis in Appendix A. Appendix B contains a list of students in TCM 220 and TCM 340 by major and by score.

Data

The following section discusses the assessment techniques and results for TCM 360, TCM 220, and TCM 340. Observations and potential follow-up activities are part of the discussion.

TCM 360 Data

Our ongoing challenge with TCM 360 is getting the participation we would like to have from engineering faculty to serve as jurors for the students' final oral presentations. In semesters past, we have frequently faced the situation of no outside jurors attending. So in fall of 2007, we asked engineering faculty to attend only one day. As a consequence, only six students were evaluated, but they were evaluated by five faculty, three from engineering and two from TCM. The evaluation results came out very strong and very consistent. All students averaged over 4.0, and all categories of evaluation also went over 4.0, a remarkable accomplishment.

Using a rubric judging 13 discrete criteria of the presentation, the jurors scored each of the criteria on a scale of 1-5. The criteria (categories) assessed were Introduction, Content, Data &

Analysis, Conclusion, Organization, Visuals, Language, Length, Grammar, Preparation, Pace&Volume, Body Language, and Q&A Time. An "Overall Impression" is also included as a 14th category.

The goal of the assessment was two-fold: (a) 70% or more of the students would achieve an overall average score of 3.5 or higher; and (b) 70% or more of the criteria would be judged at 3.5 or higher.

The results for the Fall of 2007 were happily met on all students for all criteria.

A detailed report of the data is found in Appendix A.

TCM 220 Data

The artifacts used to evaluate TCM 220 are the final products of the semester. Close to the end of the semester, each TCM 220 instructor is asked to submit a clean copy of certain students' final submissions. These students are chosen at random by the Program, not by the instructors. In the fall of 2007, artifacts were collected from seven instructors.

Those final products are then evaluated by TCM administrators using a rubric of 12 criteria: Introduction, Content, Data & Analysis, Conclusion, Organization, Visuals, Layout, Language, Length, Mechanics, Sentence Structure, and Credit for Sources.

We set as a goal that 70% of the students achieve an average score of 3.5 or above, and 70% of the criteria being evaluated at least 3.5. We mostly succeeded in the latter category; 10 of the 12 criteria averaged at least 3.5, with the only exceptions being Layout (3.4) and Length (3.4). The student results were more mixed. Sixteen of the 27 students scored at least 3.5; that calculates to a 60% success rate, with raw scores ranging from 2.3 to 4.5.

A step we have not taken before in this analysis is to compare the students' final course grades with the evaluators' assessment of their final products. Although this measure is by no means fool-proof (course grades are based, obviously, on a number of factors, not just one product), it nonetheless offers a potentially informative avenue to explore in terms of consistency in the Program. Interestingly, of the 27 grades investigated, instructors gave only one C and one C+ , with the rest of the grades being above C+. They broke down in this manner: five Bs; three B+s; six A-s; and 11 As. Considering the random nature of the selection process, one wonders why no student received below a C and why a seemingly disproportionate number (41%) received straight As. Whether or not we are experiencing a kind of systemic grade inflation should probably be explored.

A detailed report of the data is found in Appendix A.

TCM 340 Data

In previous semesters, we have not considered TCM 340 one of the "ABET benchmark" courses. However, during the last ABET visit, the Construction Engineering Management Technology (CEMT) requested that we collect data from that course, as it is a requirement for their majors.

Many other technology majors identify TCM 340 as an alternative requirement. Therefore we have initiated an evaluation process for TCM 340.

Because of the nature of the communication activities of TCM 340 – mostly letters, memos, and emails – the rubric used for TCM 360 and TCM 220 written reports seemed inappropriate and irrelevant. The final assignment in the course is called a Business Correspondence Portfolio (BCP), and it generally contains a resume and cover letter, a routine message, persuasive message, and bad news message, and a course reflective memo, a collection of representative pieces from the semester's work. Using the instructors' rubric for the evaluation of the BCP, two TCM administrators did holistic evaluations of the 11 BCPs, taken – again, at random – from three instructors.

The Evaluation Form has 10 major criteria: Course Reflective Memo; Content (subdivided as complete and accurate and professional); Audience; Details; Smoothness; Sentences; Mechanics; Length; and Formats. The final criterion is "Grade," in which the evaluator places the approximate grade s/he would give the BCP.

Following the traditional goal of (a) 70% or more of the students achieving an overall average score of 3.5 or higher; and (b) 70% or more of the criteria being judged at 3.5 or higher, we again saw mixed results. Seven of the 11 students scored over 3.5, but that is only 64%. Of the 11 criteria, six received over 3.5, meaning that five did not. Interestingly, the criteria showing the weakest scores are those having to do with the "polish" of the communication: "Messages flow smoothly (transitions are chosen and placed well)" had only a 55% success rate; "Sentences are clear & easy to read" came in at 45%; and "Spelling, grammar, & punctuation are error-free" earned a 36% rate. As opposed to the successful implementation of "Messages are written with a clear sense of audience" at 73% and "Ideas are developed thoroughly with specific supporting details" at 82%, the perhaps more elusive skills of clear and precise writing may need more emphasis in TCM 340.

As with TCM 220, we also looked at the grades the students received in the course. Again, the letter A predominates, with 2 A+s, 4 As, 2 A-s, 2 Bs, and 1 C. The trend towards the high end of the scale warrants some analysis.

A detailed report of the data is found in Appendix A.

PULs - Renewed Campus Emphasis

In the academic year of 2007-2008, IUPUI campus administration revitalized its interest in and emphasis on the Principles of Undergraduate Learning ("PULs") as a campus benchmark for student outcomes. As part of that effort, the assessment committee of the School of Engineering and Technology looked at their assessment strategies and outcomes for PUL 1 –D. This activity was tracked across the different departments and majors across the school. Although the Technical Communication Program does not have majors, the program participated in the analysis and discussions of the PULs. Our previous mapping of the PULs to ABET outcomes was helpful in this process.

Feedback

We are all aware that assessment activities do no good if they exist in a vacuum. Learning from the results is a crucial component of the process, and that learning includes sharing the findings with the faculty and administrators of the Program. TCM uses the data it collects as a basis for faculty discussions geared towards the improvement of curriculum and teaching methodologies. For example, we have increased our emphasis on graphical representation of information as a result of past weaknesses revealed by the assessment process.

TCM does not limit its feedback only to its own instructors, however. Participation on the School's assessment committee has encouraged dialogue with members of both the engineering and technology faculties on communication issues. TCM has shared its rubrics for both oral presentations and written reports with the entire ET faculty as a start to standardizing the evaluation of those kinds of assignments. We also share the results of our data by department. Our efforts are focused on continuing to be both a resource and an integrator of communication skills in the general ET curriculum.

Specific plans for TCM faculty feedback include a presentation at our fall faculty meeting, where the results of this report will be shared.

Next Steps

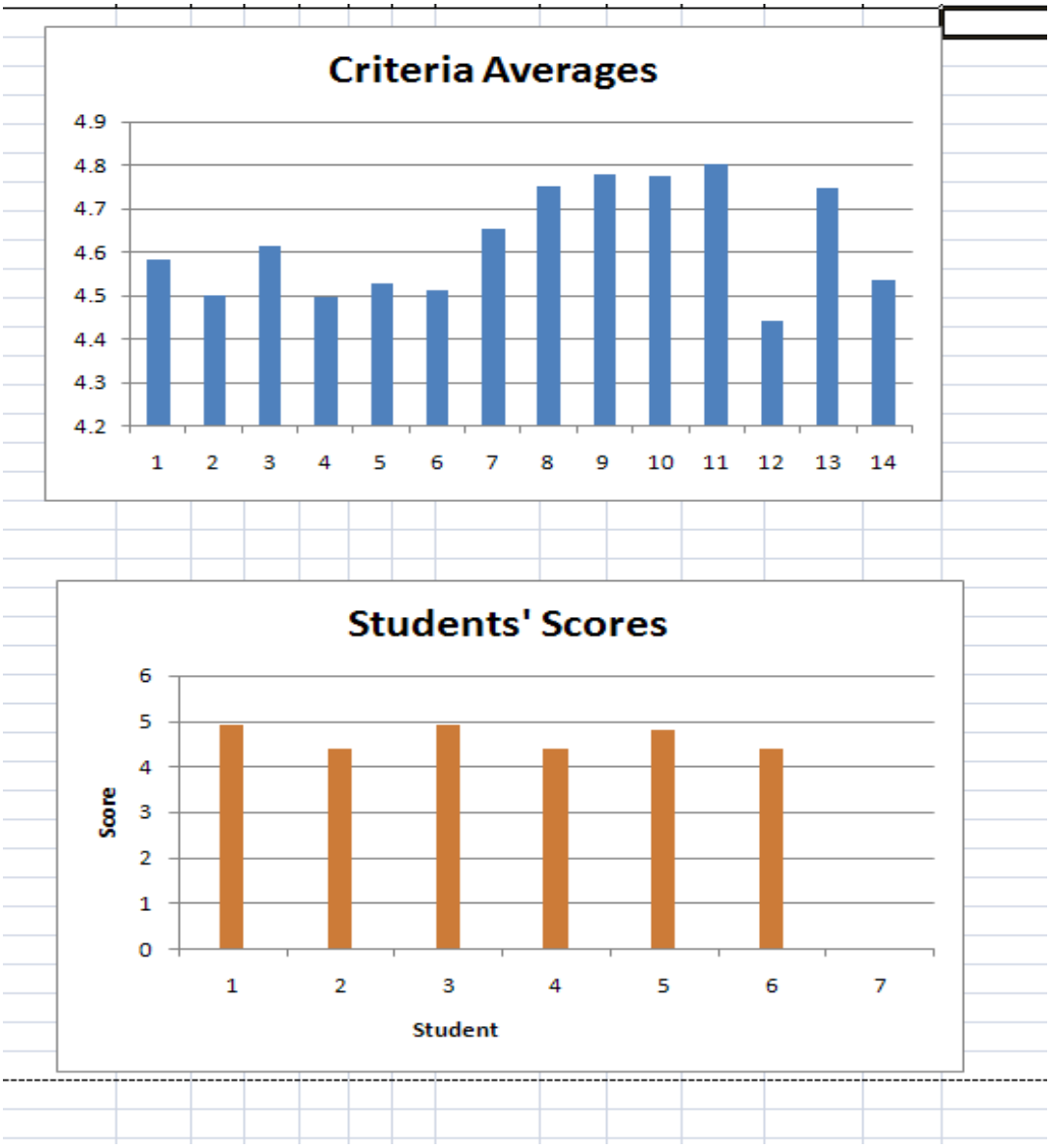
The ongoing assessment process requires constant attention. While TCM has some good news to report for 2007, the collection of that data supplanted the collection of other data. Finding a suitable and meaningful balance remains a challenge! Specifically, in 2008, TCM needs to:

- Collect written as well as oral artifacts from TCM 360
- Devise a meaningful methodology to judge presentations in TCM 370
- Investigate change in collecting artifacts in TCM 220 to achieve a wider spectrum across the grading scale

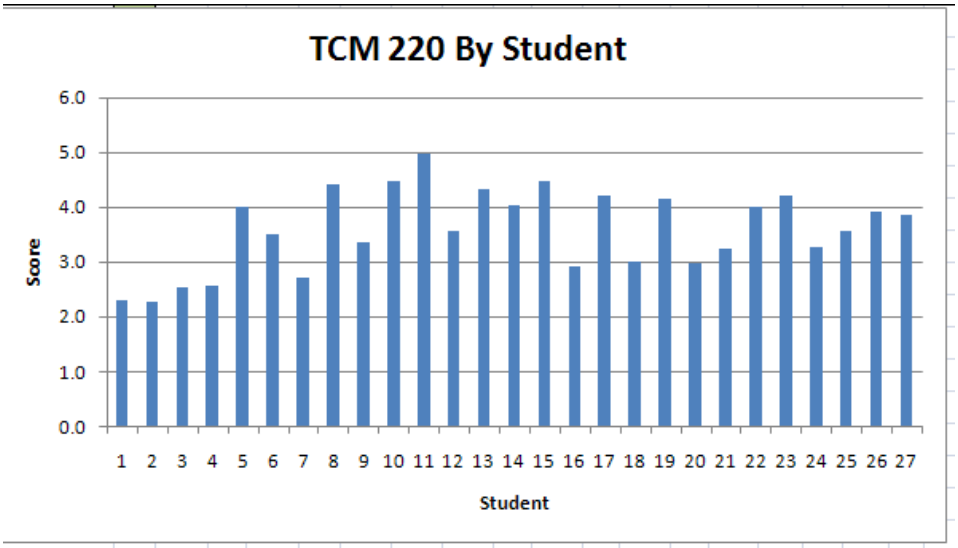
Fine-tuning procedures and organizing data collection in the fall of 2008 will be a priority at the beginning of the semester.

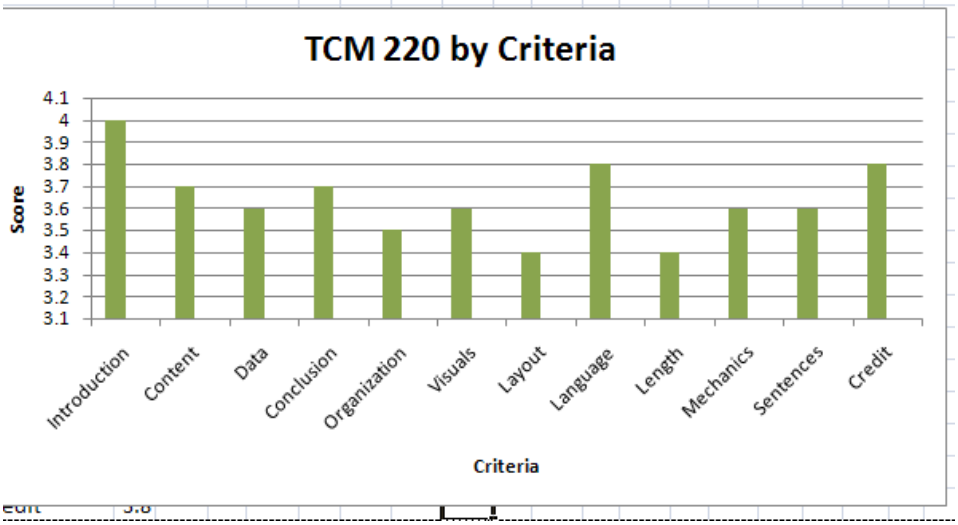
Appendix A

.Tables A-1 and A-2. Evaluators' Assessments of TCM 360 Presentations.

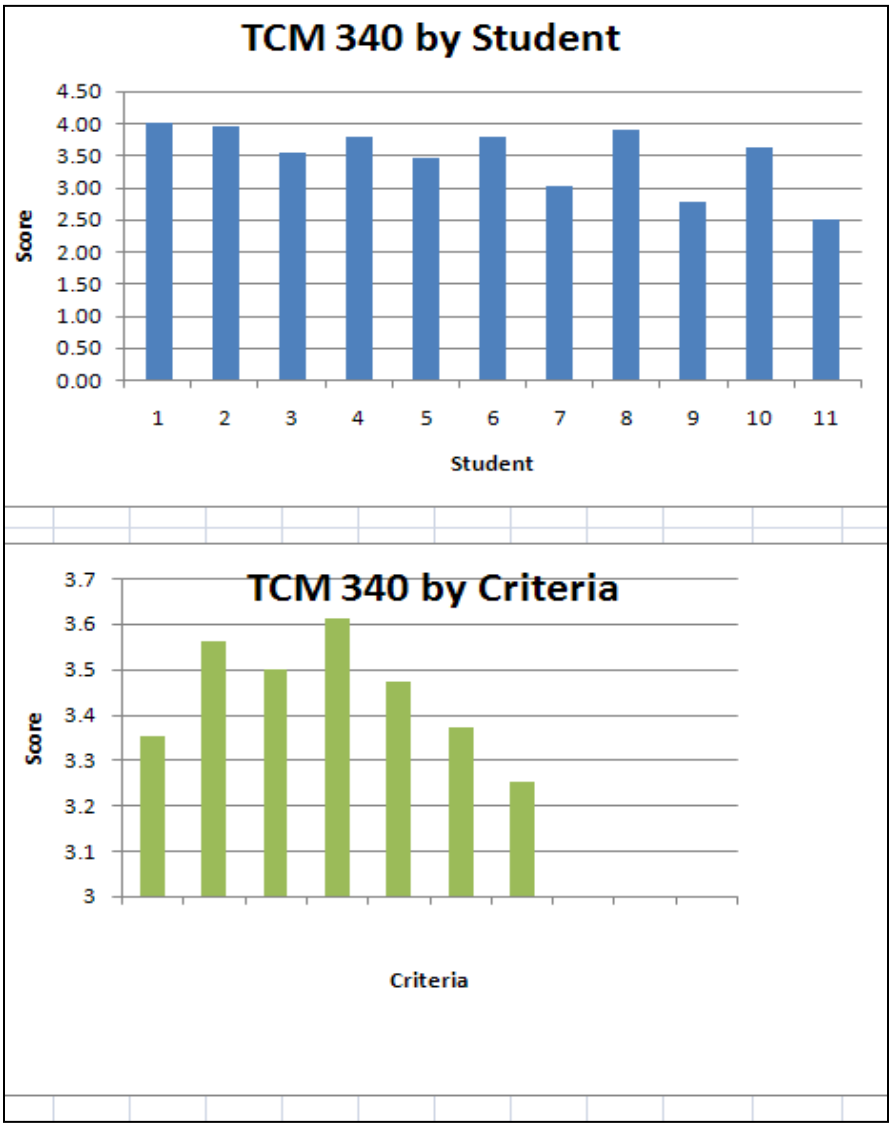


Tables A-3 and A-4. Evaluators' Assessments of TCM 220 Final Products.





Tables A-5 and A-6.. Evaluators' Assessments of TCM 340 Business Correspondence Portfolios.



Appendix B
Outcomes by Department

TCM 220 Outcomes by Department

Major	Score
ART	2.5
CEMT	3.5
CEMT	2.7
CEMT	4.4
CEMT	4.5
CEMT	3.6
CEMT	4.2
CEMT	3.5
CGT	2.9
CGT	4.2
CIT	3
CIT	4
CIT	3.9
CIT	3.9
ECET	3.3
Health Info Adm	5
INTR	4.5
MET	2.3
MET	2.3
MET	2.3
MET	4
MET	4
MET	4.1
MET	3
OLS	3.4
OLS	4.3
OLS	3.3

TCM 340 Outcomes by Department

Major	Score
CEMT	4
CEMT	2.75
CEMT	2.75
CEMT	3.5
CGT	3.5
CGT	3.03
CIT	3.75
CIT	3.75
CIT	2.25
MET	4
MET	3.2