Assessment Report

2005 – 2006 Academic Year

Lawrence Technological University

Walter K. Dean
Director of Assessment

Lawrence Technological University Assessment Report 2005 – 2006 Academic Year

Introduction and Summary

Assessment of student educational outcomes at Lawrence Technological University is the responsibility of the University Assessment Committee. This committee is chaired by the Director of Assessment, a faculty member appointed by the Provost; one member from each academic department; and as non-voting members, the Provost, the Associate Provost, and the Coordinator of Institutional Research and Assessment:

University Assessment Committee Membership (2005-2006)

Chair and Director of Assessment	Walter Dean

College of Architecture

Architecture	Daniel Faoro
Art and Design	Virginia North

College of Arts and Science

Mathematics and Computer Science	William Arlinghaus
Natural Sciences	Nicole Villeneuve
Humanities, Social Sciences and Communication	Barry Knister
	Betty Stover

College of Engineering

Civil Engineering	Donald Carpenter
Electrical and Computer Engineering	Peter Csaszar
Engineering Technology	William White
Mechanical Engineering	Laura Lisiecki

College of Management

College of Management	Patty Castelli

Ex-Officio Members

Provost	Lewis Walker
Associate Provost	Maria Vaz
Coordinator, Institutional Research and Assessment	Mary Thomas

The Committee meets every other week during the academic year, in addition to spring and fall planning retreats. Its function is to advise the Director of Assessment, to plan and carry out assessment programs of the University, to supervise and coordinate assessment activities within their own departments, and to report these back to the whole committee.

In addition, individual meetings took place during the fall term at which each individual Committee member, the Director of Assessment, the Associate Provost, and the Department Chair or Program Director (and in some cases the Coordinator of Institutional Research and Assessment) discussed the specifics of assessment in each program, and agree on strategies for assessment within the Departments. These meeting help to ensure the vitality of the assessment effort within individual programs.

Most of the members of the Assessment Committee have three hours of release time per year to dedicate the necessary time to the assessment activities in their department.

The Committee's activities during 2005-06 were focused on three areas. These are described briefly here and in more detail in later sections:

Assessment of Student Teamwork

Assessment of student teamwork began during the 2004-05 academic year, and continued with the 2005 Assessment Day program. The theme of the program was the definition of teamwork in a way that could be agreed upon across curricula and successfully assessed at the University level. The Committee then developed, piloted, and administered a survey designed to assess the level of student teamwork and of teamwork education in the LTU curriculum.

Realignment of the LTU Assessment Program

In April of 2005, a Higher Learning Commission team visited Lawrence Tech for a focus visit on assessment and governance. The team found

that LTU had been progressed in the assessment of student learning and recommended to the commission that LTU does not have to write additional interim reports before the next comprehesive visit in 2011. However, the team did point our that progress to that point had been slow, and advised that we reduce the number of educational goals and devise a plan to assess our goals on a five-year cycle. The Committee made this a major focus of the year's work, and reorganized the seventeen existing educational goals into five groups, fitting the five-year cycle.

Revision of Assessment Timeline and Strategies

The realignment of the assessment program, with a specific five-year cycle, required a revision of the assessment timeline to fit this cycle, since the original timeline did not fit the new goal groups. The Committee also continued to develop strategies for assessing these goals, including deciding which goals would be assessed at the University level and which within the departments.

Development of the Leadership Development Curriculum

During the 2004 – 05 academic year, the Assessment Committee developed a Leadership Vision Statement and recommended to the Provost that a Leadership Curriculum be developed to implement that vision. This year, the Director of Assessment attended meetings of the Leadership Curriculum Task Force to serve as liaison on assessment issues.

Student Assessment Committee Activities for the Academic Year 2005-2006

1. Assessment Day 2005 (September 18, 2005)

Assessment Day is an all-day in-service faculty program held on the third Friday of each fall term. Its purpose is to give the faculty an opportunity each year to focus on student outcomes assessment, to share information and methods, and to learn about assessment in the areas of our educational goals.

The 2006 Assessment Day was dedicated to the assessment focus topic of the year, student teamwork. Dr. P. K. Imbrie of Purdue University visited our campus, giving the Assessment Day keynote address and leading a faculty workshop on teamwork in the afternoon. This workshop is described in more detail below.

The agenda for the 2006 Assessment Day is presented on the next page.

Lawrence Technological University
Assessment Day
Friday, September 16, 2005

Lear Auditorium - T429

AGENDA

Continental Breakfast 8:30 - 9:00 A.M.

1. **Welcome** 9:00 - 9:30 A.M.
   * *Dr. Charles Chambers (President)*

   Introduction
   * *Dr. Walter Dean (Director of Assessment)*

   Results of NCA Focused Visit
   * *Dr. Maria Vaz (Associate Provost)*

2. **Keynote Address** 9:30 – 10:30 A.M.
   * *Dr. P. K. Imbrie, Purdue University*

Break 10:45 – 11:00 A.M.

4. **Leadership Development Program Proposal** 10:45 – 11:30 A.M.
   * *Dr. Lewis Walker (Executive V. P. and Provost)*

5. **Update Report on Student Writing and Oral Communication**
   11:30 – 11:45 A.M.
   * *Mr. Gary Cocozzoli*
   * *Dr. Kevin Kelch*

Lunch – *Café Lawrence* 12:00 – 1:00 P.M.

6. **Workshop on Student Teamwork** - *Café Lawrence* 1:00 – 3:00 P.M.
   * *Dr. P. K. Imbrie*

7. **Adjournment**

2. Assessment of Student Teamwork

The question of how to assess the development of students' ability to work in teams engaged the attention of the Assessment Committee during much of the first half of the year. Eventually it was decided that it was not feasible to assess every student according to their ability to work in teams. Rather, our initial efforts would be directed to measuring the number and quality of the team experiences that they do have, in order to make sure that these are being provided at all stages of the curriculum and that they conform to current "best practice" in teaching teamwork.

The first step in this process was to define what a team is (to distinguish teams from other types of working groups), and to articulate the characteristics of effective teams.

Discussions among the faculty revealed a significant debate at Lawrence Tech about the difference between "team" work and "group" work and whether the two were synonymous. A significant number of faculty had students work in "teams" during, e. g., laboratory sections, and considered themselves to be using teamwork in the classroom. However, other faculty made a distinction between teamwork and group work and countered that much of the teaming at Lawrence Tech was actually group work.

The Assessment Committee adopted the following definition, as adapted from the literature:

"A team is a group of two or more students who are committed to a common purpose for which they share responsibility for the final outcome."

(Adapted from P. K. Imbrie, "Active/Collaborative Learning and Teaming in the Classroom." A workshop conducted at Lawrence Technological University, Southfield, Michigan, on September 16, 2005)

"Groups", on the other hand, would include situations where students work together but produce individual products that are evaluated individually – for example, lab partners. A "team" is to be distinguished from a "group" by the following characteristics:

- Group – single leader; individual accountability and individual work products; short duration; groups tend to discuss, decide, and delegate.

- Team – shared leadership roles even if one primary "leader"; individual and mutual accountability; collective work products; long duration; teams tend to discuss, decide, and work together.

  (Adapted from K. Smith, *Teamwork and Project Management,* McGraw-Hill, New York, NY 2007)

These definitions were provided during the Assessment Day presentation and assisted faculty in recognizing the difference between teamwork and group work. (They were also included in the teamwork survey, described below, to provide the same assistance to students responding to the survey.)

Finally, the characteristics of an effective team are:

- Positive Interdependence – team focuses on a common goal or a single product

- Individual and Group Accountability – Each person takes responsibility for both their work and the overall work of the team

- Promotive Interaction – The members do real work together, usually face to face

- Teamwork Skills – Each member has the skills for and practices effective communication (especially careful listening), decision-making, conflict management, problem solving, conflict management and leadership

- Group Processing – The team periodically reflects on how well the team is working, celebrates the things that are going well, and corrects the things that are not

(Smith, 2007)

A teamwork survey was prepared, to be administered to a selection of students at every level in the spring term. The objective of this survey was to produce a "snapshot" of student teamwork experiences at LTU, to serve as the basis for recommendations for improving teamwork

education. This survey will be repeated in Teamwork focus years and improvements noted.

The survey, which was the work of a subcommittee chaired by Dr. Carpenter, was piloted by administering it to the members of the Student Government Association (which, as far as is known, is the first instance of direct involvement of students in the development of the assessment program at LTU). After incorporating some comments made by this initial survey group, the questionnaire was administered during the late Spring 2006 term. This survey is included at the end of this section.

The demographics of the survey were as follows:

- N = 695 students (180 female, 494 male, 21 undeclared)
- College (258 Architecture & Design, 44 Arts & Sciences, 333 Engineering, 30 Management)
- Class (92 Freshman, 86 Sophomore, 182 Juniors, 299 Seniors, 14 Graduate Students)
- Balance between Day (208), Evening (210), and Both (246)
- 312 Transferred to LTU

Analysis of this survey is ongoing, but as of the close of the period covered by this report, the following brief summary of observations can be offered:

- Results indicated that 83.5% of freshman had at least one team experience with freshman reporting an approximate average of 2.7 courses including teamwork. In addition, 99.3% of seniors had at least one team experiences, with seniors reporting an approximate average of 6.5 courses that included teamwork. However, the most common response on the survey (the mode) for both seniors and freshman is 3 to 5 courses.
- Very few long-term team assignments (longer than 3 weeks) are reported by students. Thus, reported teaming activity might still be more indicative of "group" work than "team" work even though the definition was provided.
- "Self selection" or by "instructor with no explanation" were the most

common methods for team formation as reported by students. Assigning teams based on individual skills or schedules is not typically occurring. Improved team performance could be the product of assigning teams based on complementary skills.

- Faculty were pleased with student responses in the *team process and progress* section of the survey with the only areas needing improvement being peer evaluation (individuals are not being asked to evaluate their peers as part of teamwork assignments) and group decision making (students report that about half of the time a single team member dominates the groups decisions).

- Results indicated that 20% of seniors and 25% of juniors cite competition within group as a negative aspect of teamwork. The percentages were lower for freshman and sophomores.

- Results indicated that 40% of every class level agreed with statements on that "ego" was a problem during teamwork.

- Nearly 60% of students cite inability to schedule meetings as the most negative aspect of teamwork. This suggests that using students schedules more extensively to assign teams should be considered especially considering that approximately 75% of Lawrence Tech students are commuters.

- Overall, students reported teamwork experiences to be positive and grading on teamwork to be fair.

- Nearly half of the student body does not engage in teamwork outside of class assignments (i.e. co-curricular and extracurricular activities). This could be an issue for University initiatives on leadership and character development.

The next steps in teamwork assessment will be:

- Dissemination of the above results to the Faculty at the 2006 Assessment Day, and to the Deans of the Colleges.

- Further analysis of the survey data

- Discussion of the results with the Deans' Council and in individual colleges to formulate plans of action

- Education of the faculty in teamwork best practices, through the Center for Teaching and Learning, faculty roundtables, and focus groups

- Setting metrics and formulate a plan of action to put teamwork assessment on a five-year schedule

The teamwork survey is presented beginning on the next page.

Lawrence Technological University
Teamwork Evaluation Survey
Academic Year 2005 – 2006

Instructions

This survey is being conducted to assess the teaming experiences of Lawrence Tech students. Participation in this study is strictly voluntary, and your results are completely anonymous. While participation is voluntary, your participation is encouraged because your answers will assist the entire academic community in developing more meaningful teaming experiences.

The survey should take about 10 minutes to complete. Carefully read each question before answering and you may refuse to answer any question that makes you uncomfortable. You may only select one answer per question.

A committee of Lawrence Tech faculty is conducting this assessment and no identifying student information will be published.

<u>Definition of Team</u> – a team is group of two or more students who are committed to a common purpose for which they share responsibility for the final outcome.

1. During your time at Lawrence Tech, in how many courses have you worked on a team?

- 0
- 1-2
- 3-5
- 6-10
- 11 or more

If answer is "0" skip to question number 21 and complete the demographics section of the survey.

2. What is the ***average*** length of these team assignments?

- < 1 week
- 1-3 weeks
- 4-6 weeks
- 7-9 weeks
- 10-12 weeks
- 13-15 weeks

3. What was the ***primary*** way that teams were assigned in the classes?

- By students or self-selected
- By instructor without explanation
- By instructor based on personality profiles or complementary skills sets of students
- By instructor based on student's schedules
- By instructor based both on student's schedules as well as their personality/skill sets
- Other: _____

In answering questions 4-12, please reflect upon all of your team experiences and not a single team experience.

	Always	Most of the Time	Half of the Time	Almost Never	Never
4. How often did the instructor monitor the teamwork process and team progress?	□	□	□	□	□
5. How often did instructor(s) provide guidance or instructions on how team members should work together before starting the assignment/project?	□	□	□	□	□
6. How often did teamwork assignments have roles (either student assigned or instructor assigned) for team members? For example, team leader, recorder, timekeeper, etc.	□	□	□	□	□
7. If team roles were assigned, how often were responsibilities associated with those roles communicated?	□	□	□	□	□
8. How often did your team focus on a common goal or a single project?	□	□	□	□	□
9. How often were you required to evaluate your team members as a component of the team process?	□	□	□	□	□
10. How often did team members take responsibility for their work and contributions to the team?	□	□	□	□	□
11. How often did members of the team communicate and resolve conflict in a respectful manner?	□	□	□	□	□
12. How often did all members of the team participate in decision making with no single team member dominating?	□	□	□	□	□

13. Indicate your level of agreement from strongly disagree to strongly agree for each of the following statements:

I enjoy working on team assignments in my courses at Lawrence Tech because…	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
a. Teamwork skills are crucial in my field.	□	□	□	□	□
b. I was exposed to new methods for interpersonal interaction.	□	□	□	□	□
c. It will help me be a better citizen.	□	□	□	□	□
d. I understand myself better by my interaction with other students.	□	□	□	□	□
e. I recognize the positive outcomes of working cooperatively.	□	□	□	□	□
f. I have forged close relationships with my team members.	□	□	□	□	□
g. I feel safe and supported in a team environment.	□	□	□	□	□
h. It is clear to me why working on teams is critical to my education.	□	□	□	□	□

14. Indicate your level of agreement from strongly disagree to strongly agree for each of the following statements:

The negative aspects with teamwork at Lawrence Tech are…	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
a. Competition within group for better grades.	□	□	□	□	□
b. Personal ego of team members dominates over cooperation.	□	□	□	□	□
c. Focus on the problem solving outcome only and not the educational experience.	□	□	□	□	□
d. Lack of bonding with team members.	□	□	□	□	□
e. Inability to schedule meeting times.	□	□	□	□	□
f. Teamwork requires too much effort and time and is not producti	□	□	□	□	□
g. Difficulty in determining individual or group roles and responsibilities.	□	□	□	□	□

15. When considering my overall teamwork experiences at Lawrence Tech, I consider my grades for teamwork to be…

- Higher than deserved
- Fair
- Lower than deserved
- Mixed opinion

16. Your experience in teamwork assignments in courses at Lawrence Tech, with respect to your education would be described as…

- Necessary
- Beneficial, but not necessary
- Neutral
- Detrimental

17. Overall, your team experiences in courses at Lawrence Tech would be described as…

- Very Positive
- Somewhat Positive
- Neutral
- Somewhat Negative
- Very Negative

18. Have you engaged in teamwork as part of a student organization, student group, or an enrichment opportunity outside of class?

- Yes
- No

19. If you answered yes to question #18, how often would you describe the teamwork experience as positive?

- Always
- Most of the Time
- Half of the Time
- Almost Never
- Never

20. If you answered yes to question #18, your teamwork experiences outside of class at Lawrence Tech, with respect to your education would be described as…

- Necessary
- Beneficial, but not necessary
- Neutral
- Detrimental

21. Please indicate your answer to the following questions by filling in the appropriate circles.

a) Age _____

0	○	0
	○	
1	○	1
	○	
2	○	2
	○	
3	○	3
	○	
4	○	4

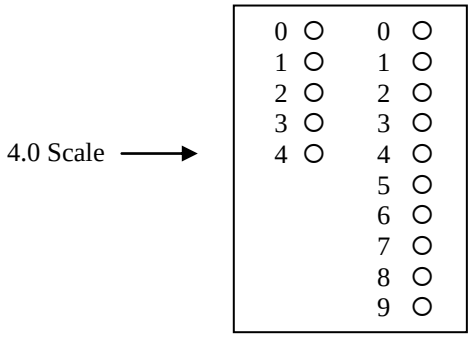
b) Gender:

- ○ Male
- ○ Female

c) College of your Major:
- ○ Architecture and Design
- ○ Arts and Sciences
- ○ Engineering
- ○ Management

d) Class Level:
- ○ Freshman
- ○ Sophomore
- ○ Junior
- ○ Senior
- ○ Graduate Student

e) What is your ***approximate*** grade point average at Lawrence Tech on a four-point scale? Fill in only your GPA from attending classes at LTU. If you have not yet completed a course and received a grade at LTU, leave blank. _____



f) How do you identify yourself racially/ethnically? (Check **all** that apply)
- ○ African American/Black
- ○ Asian/Pacific Islander
- ○ Hispanic/Latino/Mexican American
- ○ Native American/First Nations

○ White/Caucasian (persons having origins in Europe, North Africa, or the Middle East)

g) How would you categorize the time of your course selection?
- ○ Majority of courses before 5pm
- ○ Majority of courses after 5pm
- ○ Even distribution between day and night

h) Did you transfer into Lawrence Tech from another school?
- ○ No (skip the next question)
- ○ Yes, transferred from a two-year college
- ○ Yes, transferred from a four-year college

i) If you transferred into Lawrence Tech from another school approximately how many hours did you transfer?
- ○ 1-14 hours
- ○ 15-29 hours
- ○ 30-59 hours
- ○ 60+ hours

Thank you for completing this survey.

3. Realignment of LTU Educational Objectives

Another major focus of Assessment Committee activity centered around a general realignment of the University's Educational Goals. This was in response to the comment, made by the Higher Learning Commission visiting team for the focused visit on Assessment and Governance in April, 2004, that Lawrence Tech has a large number of educational goals and the pace at which we are assessing these goals is very slow. The team advised us to decrease the number of goals and to put together a plan to assess all the goals on a five-year cycle plan.

The Assessment Committee decided rather quickly that although it was true that the number of educational goals (seventeen) was substantial, it was our charge to assess them, not change them, and that to attempt to do so would involve the Assessment Committee in controversies that would do more harm than good to the assessment effort. Rather, we elected to group related goals into five groups, each of which could be assessed in a given year, putting us on a five-year assessment cycle.

In addition, we noted that the original goals, which long predated any consideration of assessment, were in many cases stated in terms that did not lend themselves to assessment. Accordingly, the goals were re-worded to retain their original content but express it in more assessable terms. We recognize that this is a first attempt and that further adjustments may be necessary in time, but this realignment promises to help organize our assessment program in a way that will produce results more quickly and efficiently.

The final document was not ready for approval by the Deans Council before then end of the 2005-06 academic year, but was approved (after final revision) on 20 November 2006. For continuity and completeness, the final version is presented here.

Lawrence Technological University

Educational Goals

Approved by the Deans Council, 11/20/06

Lawrence Technological University is a student-centered, comprehensive**,** teaching university with focused, technologically oriented professional programs. The vision of the University is to be the regional leader in focused technological and professional education.

The mission of the University is to develop leaders through innovative and agile programs embracing theory and practice.

Lawrence Technological University is committed to the intellectual and ethical development of its students. Graduates of Lawrence Tech will receive a liberal education which prepares them to contribute as citizens and enlightened professionals. The educational goals for the University's undergraduate curricula are in five areas:

- Application of Advanced Knowledge
- Fundamental Cognitive Skills and Abilities
- Leadership and Entrepreneurship
- Teamwork
- Character Education

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Goal Group I – Application of Advanced Knowledge

Undergraduates will participate in one of the major programs offered by the University, all of which include a capstone experience. This goal is supported by the following outcomes:

I. 1. Graduates will demonstrate knowledge, and expertise in applying this knowledge, in their fields.

I. 2. Graduates will demonstrate effective use of technology and the ability to apply it in their fields.

Goal Group II –Fundamental Cognitive Skills and Abilities

Graduates will have the attributes of a well-educated person. These will include both breadth and depth of knowledge in the humanities, social sciences, mathematics and analysis, and the natural sciences, consistent with the basic educational philosophy of the University. This goal is supported by the following outcomes:

II. 1. Graduates will be literate and skilled in written and oral communication.

II. 2. Graduates will be aware of the diverse basis of our culture and will demonstrate both breadth and depth in the arts and the humanities.

II. 3. Graduates will be aware of the foundations and development of American society.

II. 4. Graduates will demonstrate competence in mathematics and in the use of the scientific method and laboratory technique.

II. 5. Graduates will demonstrate creativity and critical thinking, as well as analytical and problem solving skills consistent with the technological focus of the University.

Goal Group III – Leadership

Undergraduates will receive an education that enables them to exhibit entrepreneurial skills and to assume positions of leadership. This goal is supported by the following outcomes:

III. 1. Graduates will have had experiences that promote a high level of professionalism and integrity, responsible decision making, confidence in approaching opportunities, and pride in their abilities.

III. 2. Graduates will have had experiences that promote the understanding of themselves and others, sensitivity to other cultures in the context of globalization, and interpersonal skills.

III. 3. Graduates will have had experiences that promote the ability to analyze unfamiliar situations, assess risk, and formulate plans of action.

III. 4. Graduates will have been made aware of the importance of lifelong learning.

III. 5. Graduates will have had experiences that promote a global and societal perspective.

Goal Group IV – Teamwork

Undergraduates will have opportunities to develop the ability to work with others, including those unlike themselves, so that they can contribute to a diverse society. This goal is supported by the following outcomes:

IV. 1. Graduates will have had defined roles in teamwork experiences in which both process and progress are monitored.

IV. 2. Graduates will have had team experiences in which they focus on a common goal, take responsibility for their own contributions as well as for the team's product, and evaluate one another's contribution to the team.

IV. 3. Graduates will have had team experiences in which they practice making decisions, reaching consensus, and resolving conflicts.

Goal Group V – Character Education

Undergraduates will have opportunities to develop their ethical and personal values, so that they can exercise their professional skills in the interests of society. This goal is supported by the following outcomes:

V. 1. Graduates will have had opportunities to learn the value of contributing to their community and to society.

V. 2. Graduates will have had opportunities to develop personal values as the foundation of integrity and professional ethics.

4. Revision of Assessment Timeline

Early in the process of re-writing the goals, it became apparent that some revision of the basic assessment timeline would be required to put our program on the planned five-year cycle. This was because, for example, outcomes that ended up in the same goal group had previously been assessed in different years (writing and oral presentation). Accordingly, we prepared a tentative timeline that will put us on track to assess all the goal groups before the next focused visit in 2011, and one group per year after that. This will probably require some adjustment as we go along; the current version is presented here.

University Assessment Committee - Lawrence Technological University

Five-Year Assessment Cycle

Adopted April 18, 2006

Year	Committee Focus/Activities	University Focus/Activities
2002-03	Written communication: Assessment program planning	
2003-04	Oral communication: Assessment program planning	Spring: Observation of oral presentation Piloted Writing Proficiency Exam
2004-05	Leadership: Survey, vision statement	Self-study NCA visit
2005-06	Teamwork: Survey Revision of educational goals and assessment strategies	Leadership program proposal development Fall: Writing Proficiency Exam started
2006-07	Fall: Committee or departments develop plans to assess critical thinking, etc. Fall: Departments develop plans to assess Adv. Knowledge Fall: NS, MCS develop plan to assess Math, Science goals Fall: HSSC develops plan to assess Humanities goals	Advanced Knowledge and Foundation Cognitive Skills: Spring: Implementation of plans developed in Fall 2006 Writing proficiency exam continues; pull sample for analysis Observe oral presentations
2007-08	Character Education	Leadership program starts
2008-09		Teamwork
2009-10	Prepare self-study for NCA visit	Character Education - End of first cycle
2010-11	NCA visit	Advanced Knowledge
2011-12	To be determined	Foundation Cognitive Skills: Pull writing proficiency exam sample Observe oral presentations
2012-13	To be determined	Leadership
2013-14	To be determined	Teamwork
2014-15	To be determined	Character Education - End of second cycle

5. Assessment Strategies

In order to achieve the goals outlined in the Assessment Timeline, a set of strategies was drawn up for each Educational Goal. This document is at present a work in progress, and the strategies will be developed further as we go along. Also, we are waiting on an approved Leadership Development Curriculum before developing assessment strategies for the leadership goals. The version as of the end of the 2005-06 academic year is presented here.

Lawrence Technological University Undergraduate Educational Goals and Assessment Strategies (Working draft, 4/18/06)
For first assessment cycle, 2005-2010 – to be reviewed at the end of the cycle

Group I. Application of Advanced Knowledge	**Assessment Strategy:**	**Responsible Academic Unit**	**Level**	**Timeline**
I. 1. Graduates will demonstrate knowledge, and expertise in applying this knowledge, in their professional fields	To be decided and developed by Departments	All programs	4th yr	Develop plan Fall 2006; implement Spring 2007
I. 2. Graduates will demonstrate effective use of technology and the ability to apply it in their professional fields	To be decided and developed by Departments	All programs	4th yr	Develop plan Fall 2006; implement Spring 2007
Group II. Foundation Cognitive Skills and Abilities	**Assessment Strategy:**	**Responsible Academic Unit**	**Level**	**Timeline**
II. 1. Graduates will be literate and skilled in written and oral communication including communication appropriate to their professional fields	Assessment of writing in first and second year core courses	Humanities Department	1st yr/ 2nd yr	Ongoing
	Writing Proficiency Exam	Multi-disciplinary committee	3rd yr	Pull sample in focus years
	Observation of oral presentations	Multi-disciplinary committee	3rd / 4th yr	Every 5 yr, from sp03
II. 2. Graduates will be aware of the diverse basis of our culture and will demonstrate both breadth and depth in the arts and the humanities	Place topics relevant to this outcome on LLT and SSC junior/senior elective writing assignments	Multi-disciplinary committee	3rd / 4th yr	Develop plan Fall 2006; implement Spring 2007
II. 3. Graduates will be aware of the foundations and development of American society	Place topics relevant to this outcome on LLT and SSC junior/senior elective writing assignments	Multi-disciplinary committee	3rd / 4th yr	Develop plan Fall 2006; implement Spring 2007
II. 4. Graduates will demonstrate competence in mathematics and in the use of the scientific method and laboratory technique.	To be decided and developed by Departments of MCS and NS	MCS, NS	2nd yr?	Develop plan Fall 2006; implement Spring 2007
II. 5. Graduates will demonstrate creativity and critical thinking, as well as analytical and problem solving skills consistent with the technological focus of the University	To be decided and developed by Departments Look at ACT test	All programs	?	Develop plan Fall 2006; implement Spring 2007

Group III. Leadership and Entrepreneurship	Assessment Strategy:	Responsible Academic Unit	Level	Timeline
III. 1. Graduates will have had experiences that promote a high level of professionalism and integrity, responsible decision making, confidence in approaching professional opportunities, and pride in their abilities and professional self-presentation. III. 2. Graduates will have had experiences that promote the understanding of themselves and others, sensitivity to other cultures in the context of globalization, and interpersonal skills. III. 3. Graduates will have had experiences that promote the ability to analyze unfamiliar situations, assess risk, and formulate plans of action. III. 4. Graduates will be aware of the importance of lifelong learning in their profession. III. 5. Graduates will have had experiences that promote civic responsibility and a global and societal perspective of contemporary professional life.				

Group IV. Teamwork	**Assessment Strategy:**	**Responsible Academic Unit**	**Level**	**Timeline**
IV. 1. Graduates will have had team experiences in which roles and responsibilities are defined and the team process and their team's progress is monitored.	Baseline assessment: Teamwork survey	University Assessment Committee	All	Spring 2006
	Develop a plan of action based on baseline assessment	University Assessment Committee		Fall 2007
IV. 2. Graduates will have had team experiences in which they focus on a common goal, take responsibility for their own contributions as well as for the team's product, and evaluate one another's contribution to the team.	***Presumably as for IV. 1.***	***Presumably as for IV. 1.***	***Presumably as for IV.1.***	***Presumably as for IV. 1.***
IV. 3. Graduates will have had team experiences in which they practice making decisions, reaching consensus, and resolving conflicts.	***Presumably as for IV. 1.***	***Presumably as for IV. 1.***	***Presumably as for IV.1.***	***Presumably as for IV. 1.***
Group V. Character Education	**Assessment Strategy:**	**Responsible Academic Unit**	**Level**	**Timeline**
V. 1. Graduates will have had opportunities to learn the value of contributing to their community and to society	Provide opportunities for service learning	***(Part of Leadership Program proposal)***		***(Part of Leadership Program proposal)***
	Document participation in a reflective survey of graduating seniors	Institutional Research/registrar		
V. 2. Graduates will have had opportunities to develop personal values as the foundation of integrity and professional ethics	Use artifacts prepared by students in courses where professional ethics are discussed	Institutional Research?	4th yr	
	University Seminar?	All programs	As appropriate	

6. Ongoing Assessment Activities

Leadership Assessment

One accomplishment of the Assessment Committee during the 2004-05 year was the development of a Leadership Vision Statement. On the basis of this statement, the Provost appointed a task force empowered to propose a Leadership Curriculum based on that vision. The Leadership Curriculum Development Task Force maintained a liaison with the Assessment Committee so that assessment issues could be considered as they arose, though this rarely happened during this stage. The final Leadership Curriculum proposal (included in this report) has been presented to the Provost for further action. We anticipate that the associated assessment issues will be the primary responsibility of a Leadership Curriculum Implementation Committee when it is appointed, with input from the Assessment Committee as needed. For the moment, assessment of the leadership goals is on hold, awaiting development and implementation of the Leadership Curriculum.

Leadership Curriculum
Spring 2006

Leadership Task Force: Richard Bush, Andrew Gerhart (chair), Jamie Hobart, Steven Rost, Jerry Webster, Stewart Winger, Maria Vaz, Walter Dean (assessment committee representative)

Task Force goal: what should be implemented for leadership training, not how.

From mid-December 2005 to mid-May 2006, the Leadership Task Force was charged with developing a leadership curriculum. The goal of the task force was not to determine the details of how the curriculum will be implemented but, instead, to determine what should be implemented. Each student year (Freshman, Sophomore, etc.) is listed below with the program items recommended. After each student year, under the heading of "Other," important considerations are listed.

Note the numbers listed next to each student year. These correspond to the goals/outcomes outlined in the LTU Undergraduate Educational Goals and Assessment Strategies (created by the University Assessment Committee), Leadership and Entrepreneurship goals and objectives (known as Group III); there are five listed outcomes. A working draft of the Group III outcomes is included for reference at the end of this document. For the University personnel who will develop the following suggested curriculum (i.e., the details of the program items listed below), the Leadership Task Force recommends that focused assessable objectives (as opposed to broad ones) must be written.

- **Freshman Year (Goals 2, 3, 5)**
    - University Seminar (Suggested changes to existing syllabus: the object is not to make University Seminar into "Leadership 101", but to add-in some useful content to lay a foundation for the 4-year leadership curriculum.)
        - Class meets 12 weeks @ 75 minutes per session.
        - Add a common reading; as a start, "The World is Flat" is the recommended book for now. In the future, the book will need to be changed at the course coordinator's discretion.
        - Integrate the "time management" session into the "journal" assignment to alleviate the additional time requirement of a book reading.
        - Put service learning back in Univ. Sem. Will run differently than in the past. A full-time coordinator will have to be in place for effective operation. The experience will be a small experience in Service Learning that could lead to a bigger experience. Jr./Sr. students can still choose to do a larger service learning project from their "menu". In fact, we may be able to use those upperclassmen to lead the First Year service learning experience.

        - Focus on the fact that we want implemented Service Learning as opposed to simply Community Service. Service Learning emphasizes learning; there must be reflection on the job done and "closing the loop" (assessment).
        - For freshman, service learning should be tied to the leadership through civic service.
        - Suggestion: University Seminar credit hours (or teaching load) are increased so faculty and students take it seriously.
        - University Seminar should be placed under the direction of the First Year Program office. This will allow for consistency of curriculum with a common syllabus and learning objectives.
    - If feasible: add the "Finale" to all sections of Foundations (SSC 2413) course.
        - Difficulty with timing (e.g., some instructors feel they don't have time to prepare their students).
        - Concern that with the Honors Students separated from general sections, the overall quality of the students in the remaining sections will be diluted.
    - A foreign language requirement should be imposed (as is the case at many universities).
        - Must be placed in curriculum where transfer students can also partake.
        - Option to test out.

- **Sophomore Year – Leadership Course (Goals 1, 2, 3)**
    - Course will include innovation, creativity, problem-based learning, entrepreneurism, and leadership tools.
    - Learning these "tools" in the 2nd year will allow the seminar the following year to be more meaningful.
    - Freshman Intro to Engineering, Freshman CE Perspectives, and Freshman University Seminar syllabi will be referenced during course development to ensure a continuation (as opposed to repetition) of any of the above aspects which are already being implemented in 1st year.
    - Sophomore course will be somewhere between 1 to 3 credit hours.
    - Course should be piloted in Engineering curriculum for first year of implementation.
        - After pilot, assess to find if instead of a stand alone course, it perhaps can be a credit hour added onto an existing course.
    - Arch. and Design college will need some thought as to where and how it should be implemented or if it is needed.
    - Use the EIC as a forum to keep the Leadership course fresh (continual development).
- **Junior Year – Leadership Seminar (Goals 1, 2, 3, 5)**
    - An Executive-in-Residence should serve for a year-long term to focus on seminar and aspects listed below.

- 1 credit for late soph./early jr. year.
- 1 additional credit can be earned in subsequent semester (early jr./late jr. year).
- A team called "Comedy Sportz" that use humor and a dynamic presentation to convey ideas of teamwork, leadership, etc. Each student should attend a presentation such as this. Could also be placed in Sophomore leadership course or Freshman seminar. The first semester of Junior year is the latest that students should attend this type of presentation. See www.portlandcomedy.com Open presentation to all students.
- Each credit will entail a choice of items from menu options (for a total of 2 credits).
- The Leadership Seminar consists of menu choices.
    - A minimum of activities must be done as part of Leadership seminar.
    - Conferences or workshops could be required in addition for all students.
    - A student could pick extra activities for more points (if there is a point system).
- An out-of-classroom experience is needed. As demonstrated by military, youth scouting, etc., it will prove to be character building and allow the practice moral reasoning.
- Need of an international travel experience. The logistics and feasibility of sending all students out-of-country is major challenge. But, simply visiting outside of metro Detroit is like an international travel to some students, and may suffice.
- Three suggestions:
    - We need to "crawl before we can run;" perhaps each college can have a field-trip instead of travel abroad.
    - Dennis Howie and Advancement Office can be approached to fundraise for each student to able to participate in field-trips.
    - Every student does not need the same experience, since every student is at a different place in his or her life. Therefore, use "Student Leadership-skills-building Activity Menu." A student can choose from:

    1) travel (international or domestic),
    2) service learning project (semester long or more). Note many other leadership programs use what is termed the "Alternative Break". It is a service learning opportunity during Spring Break week,
    3) a series of seminars and workshops (semester long or more),
    4) Hold a leadership position in a community organizations (e.g., "lodges", Scouting, etc.),
    5) Hold a leadership position in a Student Chapter organization (e.g., SAE, ASCE, etc.),
    6) Senior project may include service learning (e.g., EPICS).
- Jr. Seminar could be pass/fail.

        - Make Leadership Seminar required like the writing proficiency exam. Students could be charged a small fee (like a lab fee), then programs like the Comedy Sportz and/or conference sessions could be held (this was done in the past for student group leaders).
    - Students could come in earlier in semester (before semester) to do part of Leadership Seminar.
    - If a conference session (workshop, etc.) is used, Student Affairs could issue Leadership Certificates as they have in the past.

- **Leadership Portfolio**
    - The process can begin in Univ. Seminar or Tech. Comm. course. Perhaps it should have a resume-type structure.
    - Cons to Leadership Portfolio (relating to the extra burden it may create):
        - Another thing for students to do that is outside of their discipline of study (Architecture students already are doing portfolios).
        - Responsibility for faculty to monitor/assess. Where is the time to look at these with the student? Advising alone already takes a tremendous amount of time.
        - How to handle students transferring between colleges?
        - What format should it take / What should be included?
    - Pros to Leadership Portfolio – Ideas to help address aforementioned cons:
        - Build the portfolio through the curriculum.
        - Use a system of electronic data collection.
    - Pilot the portfolio idea with a group of students (the honors students) before full implementation.
    - The value of the portfolio was discussed. It allows for student assessment and faculty assessment to show the growth of the individual over the 4 or 5 year leadership curriculum.

- **Senior Year – Capstone Project (Goals 1, 3, 4)**
    - Realizing that not all students on a senior project team can get direct leadership practice (especially for individual senior projects), the senior project must be structured in such a way to meet LTU Undergraduate Educational Goals and Assessment Strategies, Group III, Goal 3 (created by the University Assessment Committee; see attached).
    - Current Senior Project format by major:
        - Engineering students: multi-semester, team-based projects.
        - Arch./Design students: Student projects start as teams, but there is a benefit/need to the student to encourage individuality as the project progresses.
        - Other majors/colleges should consider the inclusion/creation of a senior project experience, and it should include some leadership skill practice.

OTHER:

- Must limit leadership curriculum to students that are enrolled at LTU for at least (approximately) 3 years for the initial implementation of the curriculum.
- In the LTU Undergraduate Educational Goals and Assessment Strategies (created by the University Assessment Committee), Leadership and Entrepreneurship goals and objectives (known as Group III), outcomes 1, 2, 3, and 5 would without doubt be met by the current ideas and recommendations of the committee. Outcome 4 ("Graduates will be aware of the importance of lifelong learning in their profession.") was discussed at more length. The following is recommended to meet the outcome:
  - Students perform a mock professional development plan, but must be made aware that a career path change is common. This could be done in Freshman University Seminar and revisited in Tech. Comm. course.
  - Include: 5-year vision, discussions with career services. Perhaps introduce this when Leadership Portfolio is introduced, and include it in the Leadership Portfolio.
- Two programs worth future review:
  - Headwaters Leadership Institute – an extension of the Detroit to Pittsburgh Canoe Expedition. Dr. Philip Vogt is working toward a leadership institute based on historical and high adventure projects.
  - EPICS – Engineering Projects in Community Service. A way to introduce service learning at LTU. Program is already established world-wide and involves all college disciplines.
- The importance of looking further to the future: LTU needs "branding." Suggestions:
  - All students should be trained to be Global Leaders.
  - All students should take international course (monetary issues with this?).
- To accomplish the long-term goal of Branding LTU, a plan needs written for the next few years that will include vision and ideas for the future.
- Issues with implementation of the leadership curriculum was discussed. Among the major hurdles: commuter campus and diversity of majors.
- Elements of Graceland U. and Gonzaga U. Leadership Programs are worth consideration. Graceland had a good layout of various activities/courses that build upon the previous year's. Gonzaga combined the Leadership with Entrepreneurial learning.
- The leadership curriculum could have an honors recognition at graduation (or a certificate) for those students that went above and beyond the standard leadership curriculum. Using a points system for various program items may facilitate this recognition.
- Critical question that will/has arisen: How does LTU add more credit hours to the degree programs?
  - Our Task Force response: we are aware that credit hours are added (3 to 5, not counting a foreign language requirement), but we have found that LTU degrees would still be within a

typical credit hour range of other institutions. If the Leadership Curriculum is found to be important enough to LTU, then adding a few credit hours should be a priority.

- Should any of the program/curriculum items in this document be developed by a committee or individual that does not include one of the Task Force members, it is recommended that task force members are consulted.

Prepared by: Andy Gerhart based on Leadership Task Force meetings.

Excerpt from **"Lawrence Technological University Undergraduate Educational Goals and Assessment Strategies"** (working draft as of 3/22/06).

Group III. Leadership and Entrepreneurship
III. 1. Graduates will have had experiences that promote a high level of professionalism and integrity, responsible decision making, confidence in approaching professional opportunities, and pride in their abilities and professional self-presentation.
III. 2. Graduates will have had experiences that promote the understanding of themselves and others, sensitivity to other cultures in the context of globalization, and interpersonal skills.
III. 3. Graduates will have had experiences that promote the ability to analyze unfamiliar situations, assess risk, and formulate plans of action.
III. 4. Graduates will be aware of the importance of lifelong learning in their profession.
III. 5. Graduates will have had experiences that promote civic responsibility and a global and societal perspective of contemporary professional life.

Writing Assessment

The Student Writing Assessment Program is now accepted by faculty and students alike as a routine part of the Lawrence Tech curriculum. The program is under the Department of Humanities, Social Sciences and Communication and is administered by Joyce Munro and is due for "closing the loop" in the 2007 – 08 academic year. In the meantime, the points of the original writing assessment proposal are being implemented as follows:

A timed essay is required of all students as they complete the first semester of their junior year (60 to 80 credit hrs.) **A passing grade on the timed essay is one of the graduation requirements for all LTU students.** Those who transfer to LTU with more than 75 credit hours must complete the timed essay during their first semester at LTU. Those students who fail the essay are required to take an advanced writing class during the following semester. After completing the class, they again write the timed essay.

The faculty of each program should collectively find ways to increase the quantity and the quality of writing required from students. This is being pursued at the department level, and progress is reported in the Departmental reports.

The university's professional writing assessment committee lists and distributes to all faculty the type of common small mistakes found in the evaluation of student writing samples. This practice seems to have fallen into abeyance; the Committee will investigate whether it should be renewed.

All faculty and students will receive the Banned Error list and the List of Minor Mistakes to Avoid each semester. The Banned Error List and the List of Minor Mistakes to Avoid are posted in the LTU website. In addition every semester the provost's office sends a letter to all full-time faculty explaining the writing improvement initiative. Attached to this letter is the Banned Error List and the List of Minor Mistakes to Avoid. Adjunct faculty gets the letter and the same lists with their Letter of Agreement.

In all classes for which writing is required, the syllabus should include a statement on the expected quality of writing. This is being pursued at the department level, and progress is reported in the Departmental reports.

It is the students' responsibility to present well-written assignments. This is being pursued at the department level, and progress is reported in the Departmental reports. As part of the "loop-closing", the Assessment Committee members will report on the practices being followed in their Departments.

Students will be made aware of the results found in the assessment of professional writing. The Associate Provost and several members of the Professional Writing Assessment Committee are made aware of the results found in the assessment of professional writing. Using these results and the recommendations made by the Writing Committee, LTU administrators and faculty collaborate with student leaders, with the aim of developing a plan for improving the quality of student writing. Student leaders are encouraged to produce and distribute writing that other students can use as positive examples reflecting the standards described in the Writing Committee Report.

Assessment of Oral Presentation Skills

The Oral Communication Assessment program is under the Department of Humanities, Social Sciences and Communication and is administered by Prof. Kevin Kelch. This program is also due for "closing the loop" in the 2007 – 08 academic year. In the meantime, the program is proceeding along the lines described in earlier reports. The Oral Communication Assessment Team will continue a longitudinal study in which they will will track the ten students from Phase One of the Oral Communication Assessment Project as these proceed through their remaining course work at Lawrence Technological University.

Student Awareness of the LTU's Assessment Program

All new students are made aware of the assessment program at Lawrence Tech. During Discovery Days (the welcome program for freshmen students) the first year coordinator explains to the students the assessment program at LTU and the ways students will be involved in the program.

As already noted, members of the Student Government Association were involved in pilot testing the Teamwork Survey this year.

Assessment Levels of Implementation Matrix

In the past, members of the Assessment Committee have, in collaboration with the Faculty of their departments, filled out a "levels of implementation" matrix to evaluate the state implementation of the assessment plans of their department and of the University as a whole. This year, it appears that this evaluation was not done. We will complete the matrix next year, but it is not apparent that there is much to be gained at this stage by evaluating every year. The scores in most areas have been nearing the top of the range – in 2004-05, almost all of them were greater than 2.5 out of 3 – and rapid changes from this point are not expected. Thus it may be sufficient from this point to sample only in alternate years.

Departmental Assessment Reports

2005 – 2006 Academic Year

College of Architecture and Design

Department of Architecture

Architecture Department
Objectives and Outcomes Assessment Summary
2005 - 2006

1. Program Educational Objectives, Outcomes and Accreditation Status

The Department of Architecture offers two degrees: The Bachelor of Science in Architecture, the Master's in Architecture. The Educational Objectives and Outcomes for the Master of Architecture are established by the National Architectural Accreditation Board (NAAB). There are thirty-seven Performance Criteria for this program. The Master of Architecture holds a full six-year accreditation from NAAB, with the next accreditation visit scheduled for the spring of 2008.

2. Assessment Activities and Assessment Results

The following yearly plan was conceived during fall 2005:

- As a major assessment activity, at least one assessment goal will be assessed every semester. Assessment goals will be aligned with the NAAB 37 Student Performance Criteria. The Committee will continue to coordinate a yearly schedule as to which goals and which core courses are to be assessed every semester for the next few years in preparation for the next NAAB Accreditation visit. Every selected goal (i.e., performance criterion) will include outcomes, objectives, and assessment implementation strategies.
- The committee will promote more active participation of the full-time architecture faculty in the aforementioned assessment efforts. For the last couple of years, the Architecture Assessment Committee members have volunteered to assess their classes. The committee will seek for other faculty members' assistance in assessing their courses in coming years.
- As part of the ongoing debate among ACSA member schools regarding suggested revisions/clarifications to the current NAAB student performance criteria, the Committee will continue to assess and record COAD's evaluation of NAAB's criteria.
- The Architecture Assessment Committee will continue to work in collaboration with the COAD Curriculum Committee concerning the review of the current curriculum during the academic year 2004-2005). This will include discussion of recent revisions to the Freshman studio courses, as well as the IDS3-IDS4 sequence.
- The Committee will continue to update the Architecture faculty on the ongoing and future activities of the Architecture and the University Committees. In addition, the Committee will engage the faculty in the assessment-related activities via emails, letters, and faculty meetings throughout the year.

Other items accomplished for the academic year -2005/06

Fall 2005

- Developed assessment plan for Allied Design Studio: Sustainable Architecture for Fall 2005 term; Professor Edward Orlowski (Architecture Department Chair) volunteered to asses this class (see *Attachment 1-4*). This assessment follows with the University-wide teamwork survey, and was conducted to establish a baseline of student teamwork results.

Spring 2005

Courses; Structures 1 (ARC2514), Structures 2 (ARC3523) and Structures 3 (ARC4543) Structures 4/Advanced Structures: ARC4543/ARC5543 Structures Coordinator- Daniel Faoro, Assoc. Professor
Goal 1: To address suggestion noted in NAAB Visiting Team report, March 2-6, 2002, 17. *"The team suggests that greater attention be given to innovations in structural systems and well as traditional methods.*" before next accreditation visit preparations 2006/07.

- **Goal 2.** To assess the impact and effectiveness of the use of advanced digital media as a lecture/presentation medium in Structures 1.
- See Attachments 5-6

3. Action Plan for 2006-2007

1. Assessment of two courses

- The College is gearing up for the next NAAB Accreditation Review Team's visit in 2 years and is in the process of developing a comprehensive plan for preparation this semester. Therefore, the selection and assessment of courses should be based on and developed in conjunction with such plan as soon as it becomes available.
- In the Fall of 2006, Professor Orlowski will introduce a teamwork seminar into the Allied Design: Sustainable Architecture Studio, and will conduct phase two of the teamwork assessment. The results will be compared with the baseline data gathered in the Fall of 2005.
- In conjunction with the Critical Thinking / Creative Problem Solving initiative planned by the University Assessment Committee, the COAD assessment committee will develop an assessment tool for the architecture capstone studio: Architectural Design Five. This assessment will occur in the Fall 2006 semester.
- There will be no departmental assessment in the spring of 2007, as the Department and its faculty will be preparing the Architecture Program Report (self assessment) due to NAAB in the Fall of 2007.
- The Department of Architecture Assessment Committee will be chaired by Professor Dan Faoro during the 2006-2007 academic year.

2. Assessment of the university-wide educational goals

Decided by the University Assessment Committee

1. Leadership
2. Critical thinking
3. Teamwork

(also writing and oral communication skills and other goals to be decided by the University Assessment Committee)

Current plan under consideration at Architecture to deal with the aforementioned goals (faculty input & approval required)

- The Architecture Committee to continue to develop a set of guidelines for each of these three goals through faculty participation and input
- Align these goals with the NAAB 37 criteria and develop a yearly assessment plan to assess the selected core courses where these criteria are applicable.
- Work with the University Assessment Committee to develop evaluation criteria for the three goals that are intended for adaptation to the specific needs of Architecture Department. However, it is recognized that assessment criteria should be tailored to the Department's uniqueness as per NAAB Accreditation Criteria.
- Reinforce the need for broader assessment participation by faculty who are not current members of the assessment committee.

Assess one goal from the above list for each academic year (note: this would be only our secondary objective because it is recognized that assessing one course based on one assessment goal aligned with the NAAB Student Performance Criteria is a major assessment-related activity for the Architecture Department due to significance of NAAB Accreditation and given limited faculty and heavy involvement to date of faculty in other committee areas – *See #1 Yearly Assessment Plan on the previous page*).

Architecture Program Assessment 2005-2006.

(Attachment 1)

Course to be assessed: Allied Design Studio: Sustainable Architecture (ARC4224) Phase 1

Goal

Collaborative Skills: Ability to recognize the varied talent found in interdisciplinary design project teams in professional practice and work in collaboration with other students as members of a design team.
(Collaborative skills is #7 of the updated NAAB student performance criteria)

Outcome

In recognition of the University's mission to assess teamwork and leadership skills in our graduates, this will be the first part of a two-year comparative study in the implementation of teamwork training and skill development. In demonstration of an understanding of the collaborative nature of the design process, it is seen as necessary that students are able to engage in work activities that require negotiation, critical thinking, task delegation, and cooperative planning. Students will be able to successfully complete a design project demonstrating a collaborative approach to design and production.

Objective

There is no stated objective for this first phase: the result gathered will serve as a benchmark for comparison, against which next year's results in the same class will be evaluated.

Implementation

The assessment was / will be conducted as follows:
Phase 1 (Fall 2005): Students were required to complete the attached survey form (attachment two), and evaluated the efforts and abilities of both themselves, and their design partners. This will provide a baseline for teamwork abilities, as well as an opportunity to measure any disparity between self-assessment, and peer assessment.

Phase 2 (Fall 2006): Based upon input and recommendations form the University Assessment Committee, the course instructor will integrate a teamwork training seminar into the course syllabus. At the end of the semester, students will be required to complete the attached survey. The resulting data will indicate the degree to which the training seminar improved the students' collaborative skills.

Results

A summary of the students' responses to the three questions included in the survey is included in attachment, as well as an accounting of the differentials between each student's assessments of their percentage of project responsibility, as compared to their partner's views of the breakdown of responsibilities. Attachment four includes three fields of data analysis. The first segment features a summary of each student's responses to the eight categories of assessment in the teamwork evaluation, as well as their teammate's assessment of that student's teamwork. The second set of data looks at the class as an aggregate, with the self-assessment scores in each category measured against each student's assessment of their partner in the same categories. Lastly, a comparison is made between the mean assessment differential for each design team, the mean responsibility differential for each team, and the final project grade for each team.

Copies of each student's Teamwork Evaluation form are available upon request. It should be noted that the members of one design team both incorrectly completed the Teamwork Elements portion of the survey; therefore no data from these two responses are included in attachment four. Attachment three, however, does include data gathered from these two students.

In reviewing the percentages of overall work that students felt they had performed (and their partners' assessment), nine of sixteen respondents felt their contribution was greater than their partners gave them credit for, and seven were in general agreement with their partner's assessment. The mean (absolute value) differential in this category was 6.72%.

In reviewing the data in the first table of attachment four, the average of each student's self assessment in the eight assessment categories is compared to their partner's assessment. In eight cases, the student's self assessment was higher that their partners assessment. Five students were more self-critical than were their partners, and in one case the student's self-assessment matched that given by his partner exactly. The mean of the absolute values of the comparative differentials was .54 points.

Chart two attempts to compare the score of the whole class against each of the eight assessment categories. The categories where students scored themselves most highly were commitment and participation, an assessment born out in the assessments of their partners. Categories in which students felt they were least successful were in preparation, leadership and organization. Among the students' assessment of their partners, leadership and flexibility were deemed the weakest aspects of teamwork. The largest absolute value differentials between self and partner assessments were in the categories of flexibility (students felt more strongly about themselves than their partners did), and participation (interestingly, students seemed to feel that their partners were the stronger participants). The mean of the absolute value differentials for these categories was .315 points.

The final chart on attachment four compares the teamwork assessment results against the grade received on the final design project. The results come as no surprise. Of the three teams who received an 'A' or 'A-' on their work, two of them were among the lowest three differentials in teamwork assessment, and these three teams also has the three lowest differentials in percentage of work differential. The three teams which received the lowest grades on their final project had not only the highest differential in teamwork assessment, but also the greatest disparity in assessment of each partner's level of contribution to the final product. In summation, the teams who felt that the work was evenly distributed among the partners, and who had the most confluence between their assessment of their teamwork skills, and their partner's assessment, were the ones most successful in the class.

After reviewing this data (and the student comments) as a benchmark, the following potential steps are proposed for phase two of this study:

1. Identify the teamwork categories in which students (or their partners) viewed as being areas of weakness, and focus upon improving student understanding and skills in those areas: flexibility, leadership, organization, and preparation.

2. Guide the student teams in strategies of workload sharing and management, with the goal of minimizing assessment differential in this area.

3. Mentor the students in identifying the characteristics of dysfunctional teams, and strategies for dealing with the most common of these potential setbacks.

(Attachment 2) **TEAMWORK EVALUATION**

Objectives:	**Name:**
• To assess how team members view their contributions, and their partner's contributions, to collaborative efforts. • To promote successful mentoring of teamwork as part of the architecture curriculum. • To build accountability into the team process.	**Date:**

Directions:

- List alphabetically (by name), the members of your team. Include **yourself** in the list.
- Take one teamwork element at a time and consider each team member, including yourself.
- Use the following rating scale (using "average" as little as possible.) to rate everyone in the group. Use "Elements of Teamwork" as a guide.
- You must answer the questions on the last page.

- Your team members will not see your individual evaluations!

Poor = 1	Fair = 2	Average = 3	Good = 4	Excellent = 5

	Team Member Names				
Teamwork Elements					
Communication					
Participation					
Flexibility					
Leadership					
Organization					
Preparation					
Procedure					
Commitment					

ELEMENTS OF TEAMWORK		
	A Poor Team Member	**An Excellent Team Member**
Communication	Is guarded and close to the vest with little voluntary input; attacks and blames.	Is open and communicates freely without fear of reprisal or embarrassment; listens carefully; considers everyone's opinion.
Participation	Lacks initiative to contribute; gives grudging response to requests; is too busy with own concerns; misses scheduled meetings.	Is always ready to lend a hand; reaches out to help; is readily available; contributes ideas and suggestions; regularly attends meetings.
Flexibility	Is stubborn, feels own viewpoint is the only one, is always right, won't consider others' position.	Is willing to understand others' position; considers or respects win-win solutions; gives in to support common objective when appropriate.
Leadership	Is hesitant and unsure, waffles in decisions, is not able to win support, exercises no control.	Is firm and fair; holds others accountable for their commitments; is personally accountable; is supportive.
Organization	Defines and organizes personal responsibilities poorly; thinks about task, not results.	Organizes and divides work and responsibility correctly for best achievement of objectives.
Preparation	Is not prepared for action; is uninformed; neglects responsibility to team members.	Is well informed; has good ideas; researches thoroughly; is ready for action.
Procedure	Applies own rules; has disruptive behavior.	Follows procedures that are followed by all members of team; observes team rules.
Commitment	Does not understand or accept team objective; is not supportive and makes no effort to achieve objectives.	Has high understanding and acceptance of objectives; is fully informed, strongly supportive, active in effort to achieve common objectives.

Please answer the following questions:

What were *your* primary responsibilities on this project? What percentage of the overall project work did *you* do?

What were *your partner's* primary responsibilities on this project? What percentage of the overall project work did *they* do?

What additional instruction / guidance do you feel the instructor could have provided which would have enhanced the quality of your teamwork experience?

(attachment 3)

Summary of Student Comments:

Please answer the following questions:

What were *your* primary responsibilities on this project? *What percentage of the overall project work did you do?*

	Respondent's assessment	Partner's assessment	Differential
Droski	45%	45%	0
Heine	50%	50%	0
Karczag	60-75%	50%	17.5
Marra	50%	40%	10
McCormick	60%	50%	10
Reece	60-70%	50%	15
Sutter	50%	30-40%	15
Roberts	50%	45-55%	0
Robinson	45-55%	50%	0
Sluiter	50%	40%	10
Spencer	50%	40%	10
Swem	50%	50%	0
Wells	55%	45%	10
Duggar	60%	50%	10
Mack	50%	50%	0
Ewing	50%	50%	0
		Mean Differential	6.72

What were *your partner's* primary responsibilities on this project? *What percentage of the overall project work did they do?*

See data above.

What additional instruction / guidance do you feel the instructor could have provided which would have enhanced the quality of your teamwork experience?

* None. My partner and I were able to work together very effectively and harmoniously. We had been friends for some time before this project and that helped a lot.

* Nothing.

* Maybe mention an example of how to divide work? At least for final it would have been better to initially say one person does model and other book. Knowing req's for final presentation ahead of time.

* Help establish communications and goals in the team / measures of progress.

* Maybe help designate a team leader from the beginning. We constantly clashed for leadership.

* None

* Just more communication on actual design features.

* This was the best partnership I've been in at LTU. Everything came easy.

* More common workplace teamwork environments, ‘tips’ or strategies and exchanging information plan.

* I think the book should have been a semester-long project. Having it earlier would definitely have helped.

* He could not have helped our group at all.

* Not much from my perspective….It is up to the teammates to be mature and get along. It’s real life!

* Better management of assignment deadlines.

* Board format.

(attachment 4)

Student Name	Self Evaluation avg.	Partner's Assessment avg.	differential	ab. val.
Droski	4.5	4	0.5	
Duggar	4	4.88	-0.88	
Heine	4.75	5	-0.25	
Karczag	3.875	3	0.875	
Marra	3.3125	3.125	0.1875	
McCormick	3.75	3.25	0.5	
Reece	5	3.75	1.25	
Roberts	4.25	4.75	-0.5	
Robinson	4.625	4.25	0.375	
Sluiter	3.375	3.25	0.125	
Spencer	4.88	3.75	1.13	
Sutter	4	4.75	-0.75	
Swem	5	5	0	
Wells	4.25	4.5	-0.25	
Mean	4.2548	4.08964	0.165179	0.54

Category	Self Evaluation avg.	Partner's Assessment avg.	differential	ab. val.
Communication	4.28	4	0.28	
Participation	4.57	4.64	-0.07	
Flexibility	4.28	3.71	0.56	
Leadership	4.14	3.71	0.43	
Organization	4.14	3.85	0.29	
Preparation	3.67	4.28	-0.61	
Procedure	4.21	4	0.21	
Commitment	4.71	4.64	0.07	
Mean	4.25	4.10375	0.145	0.315

Team	mean of diff. (a.v.)	mean responsibility diff.	project grade
1	0.375	5%	4
2	1.005	10%	2.7
3	0.125	0%	4
4	0.531	13.75%	3
5	0.3125	10%	3.3
6	1	15%	3
7	0.4375	0%	3.7

Attachment 5. Summary of Revisions to courses in the Structures Curriculum. (Daniel Faoro)

Outcome: The course work completed by students as shown in projects and exams will provide evidence of new added content areas to meet the suggested revisions to the courses in the Structures sequence.

Results/Implementation:

1.Revised Courses in Sequence as Follows: Structures 2 (ARC3523) and Structures 3(ARC4543) will now have expanded content areas with approx 15-20% of course time devoted to Timber and Masonry structural systems. Started Fall 05/Spring 06

2. Inclusion of system selection, planning, configuration and preliminary design quiz problems in ARC3523,ARC4543, and ARC4543/ARC5543. These are studies allowing students to develop a structural system plan, configuration for a structure which requires preliminary loading and sizing of members as well as demonstration of span, bay size planning , stability and stiffness as appropriate to use/occupancy, and site related loading parameters. Started Fall 05/Spring 06.

3. Development of a new course ARC5543 Advanced Structures which has one additional credit added from the prior course ARC5512. This credit has been utilized to develop expanded content of advanced systems and computer investigation and evaluation methods, and development of a final project- a case study of a structural system for a innovative building with computational, narrative and computer analysis. The instructor class has built up a file of student projects which demonstrate project studies of advanced building structures, tensile/ masted , cables, geodesic domes.etc...Approved Fall 05 for Implementation/ Spring 06.

4. Graduate Class Proposal (status approved) Advanced Building Systems, A case study overview of new and proposed building system components based on intelligent or smart materials, and sustainable building methods. Proposed Fall 06/Spring 07 course offering pending enrollment.

5. Review of national surveys completed on course content of advanced structural systems teaching and content in ACSA Schools of architecture, Patrick Tripany, Ph.D, University of Utah. 2001. Review Survey of structural steel course content areas in ACSA completed by North Carolina State (2005).
In progress since 2001.

6. The coordinator maintains high standards in selecting instructors for the Structures 4 class holding Ph.D . and PE licence in Structural engineering. Recent hires have been Professors, Marwan Kishek, Ph.D., and Zy Liu, Ph.D, PE. and who hold positions of prominence in their field. In progress started Fall 04.

Documentation of work and outcomes has been ongoing and will be completed by Spring 06 in order to complete advance planning for NAAB Accreditation review.

Attachment 6: Survey of Advanced Digital Media/ ARC2514 Fall 2005: **(Daniel Faoro)**

Title: An Assessment Survey of the Use of Advanced Digital Media Methods in structures systems lecture courses.

Abstract: The author presents applications of advanced and traditional digital media methods as integrated in lecture courses in structural systems and analysis based on Bloom's Cognitive Taxonomy. Work presented includes commercially available digital animations beta tested by the author, FEA models and animations created by the author , digitized video clips of structural model demonstrations, and models created by students as part of analysis studies
Presented at LTU on April 28th, 2006 as part of the Blackboard Best Practices program.
Approved for The Michigan Blackboard users group conference Sept. 2006.

Post Class Survey of technical classes/structures/and advanced digital media.
Structures 1 Fall 2005.
The Survey Tool was developed by Prof. Shanin Vassigh, SUNY Buffalo to assess the use of their project ,Using Advanced Digital Media to Teach Structures. 2003

Response Rate 40/55= 72.7% Three sections of ARC2514 were surveyed.

Question Numbers
Range. 1-27 1. Strongly agree 2. Agree 3. No Opinion 4 Disagree 5. Strongly Disagree.
28- (U) Undergraduate, 29- (J) junior, 30-A (Architecture) 31- Ages,
32-(M) male, (F) female

Question #s.: Average of all responses.

1:2.2 2:3.93 3:2.75 4:2.55 5:2.35 6:2.35 7:2.88 8:3.1 9:3.08 10:2.2
11:2.0 12:1.9 13:2.9 14:2.13 15:2.25 16:2.75 17:2.89 18:2.93 19:3.15 20:2.93
21:2.2 2 2:2.45 23:3.07 24:2.65 25:2.1 26:2.98 27:2.9

Positive Questions: # 2,3, 4,5,6,8,10,11,12,13,14,17,20,21,22,23,24,25
Negative Questions # 7,9, 18, 26,27
Neutral -skill/ability oriented questions: 1,16,19,

Summary Highlights of Possitive /Negative Responses

large negative response. + 3.5/1 to +8/1 ratio
large positive response. + 3.5/1 to +9/1 ratio

Summary of Possitive Questions; Agree/disagree responses.
large negative response. + 3.5/1 to +8/1 ratio
large positive response. + 3.5/1 to +9/1 ratio

2. I would take the structures course even if it were not required?
10% agree, 72.5% disagree.

3. I am interested in taking courses that use digital media as an instructional tool.
30% agree, 15% disagree.

4. I feel the typical methods of teaching technical subjects in architecture are adequate.
52.5% agree, 15% disagree

5. Technical courses such as structures strengthen and develop my conceptual and analytic skills.
67.5% agree. 15% disagree.

6. Multi-media digital technology can enhance learning concepts related to structures in the classroom.
60% agree, 12.8% disagree

8. I anticipate seeking more learning opportunities related to structural principles beyond the required courses.
25% Agree, 37.5% disagree

10. I am curious to understand how different building structures work.
70% agree, 7.5% disagree

11. I believe that learning structural concepts is essential to my practice as an architect.
75% agree, 5% disagree

12. An understanding of structural concepts makes me more employable.
82.5% agree, 2.5% disagree

13. The architecture curriculum should place more emphasis on learning structural concepts.
35% agree, 25% disagree

Summary Highlights of Negative Question Responses

large negative response. + 3.5/1 to +8/1 ratio
large positive response. + 3.5/1 to +9/1 ratio
Negative Questions # 7,9, 18, 26,27

7. I am not interested in the subject matter of structure.
27.5% agree, 37.5% disagree.

9. I will probably forget most of the concepts I learn (or have learned) in school related to structures..
22.5 agree, 47.5% disagree

18. In general, I do not apply the material I learn about structural concepts to other architectural or design related project.
25% agree, 32.5% disagree

26. The material presented related to structures in the architecture curriculum lacks real world examples and applications that demonstrate concepts typically taught in the classroom.
12.8% agree 30.9% disagree

27. Overall I feel my academic course work relevant to structural applications does not prepare me particularly well for professional practice in Architecture.
23.5% agree, 35.8% disagree

Neutral -skill/ability oriented questions: 1,16,19,

Skill Based Questions:

1. Structural concepts are easy to understand only if you have strong math and physics background.
70% agree, 17.5% disagree

16. Learning structures requires memorizing formulas.
37.5% agree, 27.5% disagree.

19. In general I tend to understand structural concepts in textbooks better than the material presented by the instructor.
25% agree, 45% disagree

Summary Comments: The survey results indicate students do find the use of these digital methods beneficial. The authors of the Advanced Digital Media e/book (S. Vassigh, teal.) Indicate that these techniques improve performance in female and lower scoring students by 8%. Prof. Faoro plans to continue developing and implementing these techniques, he received a $300.00 stipend to attend a AISC seminar Oct.11-12 2006 in Chicago , IL on new advanced digital media material for teaching steel structures.

Teamwork Bibliography/ Reference Material . COAD Fall/Spring 2005/2006

Griffith University web site: Suggestions for assessing team work

Only use teamwork activities when it is absolutely essential to achieve the learning outcomes - don't overuse it.

· Group students into fairly small teams to achieve better learning outcomes. Try teams of two or three students, rather than groups of five or more.

· Consider appropriate cultural and gender balances in student teams.

· Construct a set of roles and responsibilities in conjunction with students to ensure commitment and ownership.

· Decide how you will know who did what in the team?

· Give students enough time to meet, do library research, conduct interviews, make presentations within class time - remember, students have busy lives too!

· Give guidelines on team management and processes and make sure all students understand them.

· Set a balance between assessing the team 'product' and the team 'process'.

· It is not unusual for teamwork to result in high quality work, warranting higher grades in a narrower range than normal. How will you deal with this?

· Will you assess students' learning journals or reflective diaries?

· Create a safe environment where students from all backgrounds and cultures can make valuable contributions without feeling threatened.

· Try to minimize stress for students new to teamwork.

· Remember - using teamwork does not reduce staff workload. Supporting the process of constructing and managing teams is complex and labor-intensive.

Teamwork Measurement methods:

1.Student class surveys, pre/post assignment.
2. Faculty surveys of outcomes.

Web link resources.

http://ali.apple.com/ali_sites/ali/exhibits/1000048/The_Lesson.html Apple Learing Exchange, and Team Design Studio Exercise for Architecture Students/See last menu item on Teamwork Assessment.

The American Institute of Architecture Students
Teamwork and understanding of roles in project ... of architecture students'' visits for medical attention, psychological counseling and academic
..www.aiasnatl.org/resources/r_resources_sctf_NAABpa... (see sections on teamwork from NAAB)

http://ipro.iit.edu/about/index.html See the websit from IIT's Architecture Program on how Teamwork is part f the Curriculum.

1. http://www.bham.wednet.edu/studentgal/onlineresearch/oldonline/mod8.htm. Bellingham Washington Public Schools.

2. http://files.irt.drexel.edu/courseweb/Mitchell_Courses/DB/ClassDB/TeamworkEnter.asp Teamwork Assessment survey/ Drexel University.

3. http://www.griffith.edu.au/text/centre/gihe/griffith_graduate/toolkit/teamwork/assess.htm. Guidelines and resources for teamwork assessment, Griffith University/ AUS.

4. http://www.nbme.org/research/stemmler2003_2004.asp Duke University, Medical Research Proposal on Teamwork.

http://www.ramsaycorp.com/categories/teamskills.asp A corporate teamwork personnel rating survey, Ramsay Corporation.

http://www.virtualteamnavigator.com/ website on the benefits of virtual team building.
Team-Based Assessment

... on the key issues behind the design and management of teamwork assessment, ... if the learning activities are extended to the assessment of teamwork. ...

www2.cstudies.ubc.ca/~belfer/Papers/TeamAssess.doc

http://www.aset.org.au/confs/aset_herdsa2000/procs/freeman.html **Self and peer assessment of student teamwork: Designing, implementing and evaluating SPARK, a confidential, web based system. An online team assessment tool developed by the authors.**
Mark Freeman, Faculty of Business, University of Technology, Sydney **Jo McKenzie**,Centre for Learning and Teaching, University of Technology, Sydney

http://www.murdoch.edu.au/elaw/indices/title/burton102_abstract.html. Assessing Teamwork Skills in Law School: A Window of Opportunity.

http://instruct1.cit.cornell.edu/courses/dea453_653/01students/anthony_melinda/TeamWkDesign.html.
A study showing how office and workplace design can facilitate teamwork.

College of Architecture and Design

Department of Art and Design

Art and Design Department
Objectives and Outcomes Assessment Summary
2005 - 2006

4. Program Educational Objectives, Outcomes and Accreditation Status

The Department of Art and Design offers four degrees: The Bachelor of Interior Architecture, the Master's in Interior Design, the Bachelor of Facility Management and the Bachelor of Fine Arts in Imaging. The Educational Objectives and Outcomes for the Bachelor of Interior Architecture are established by the Foundation for Interior Design Education Research (FIDER). There are twelve Professional Standards for this program. The Bachelor of Interior Architecture is accredited by both FIDER and the National Association of Schools of Art and Design (NASAD). The Educational Objectives for the Bachelor of Fine Arts in Imaging are established by NASAD. The Bachelor of Fine Arts in Imaging is accredited by NASAD. Objectives for the Bachelor of Facility Management are based on educational criteria developed by the International Facility Management Association (IFMA) for undergraduate facility management programs.

5. Assessment Activities and Assessment Results

Interior Architecture

During the 2003- 2004 academic year, the undergraduate Interior Architecture program curriculum was changed based on FIDER recommendations from our last program review; changes in FIDER criteria that will affect the next accreditation self-study; and annual assessment of the program. Lecture material was separated from studio courses and a capstone studio course was developed that will also be connected with the capstone studio in architecture for dual degree students. The first group of students to graduate from the revised curriculum did so in Spring 2006. Data that had been collected and analyzed during the past 5 years were summarized as part of the NASAD self study prepared during Fall 2005. Site visitors from NASAD were on campus in March 2006. They assessed the program and were to submit a report during the summer of 2006 to address the strengths and weaknesses of the program. The exit interview indicated that the Interior Architecture program had met the majority of NASAD standards. Changes in the curriculum are not anticipated. The team's assessment of the facilities available to the program were not positive and improvements are anticipated.

Imaging

The B.F.A. in Imaging program spent the Fall 2005 writing the NASAD self study which incorporated assessment data gathered and analyzed during the

past 5 years. Site visitors from NASAD were on campus in March 2006 to assess the program. A report was to be submitted during summer 2006 addressing the strengths and weaknesses of the program. It is anticipated that changes will need to occur following this review due to comments made during the exit interview. The name of one of the concentrations, Graphic Design, needs to be reevaluated based on NASAD criteria, and faculty qualifications to teach in the B.F.A. program must also be improved. Other recommendations will be available when the report is submitted.

Facility Management

Due to lack of financial support for this program, and lack of interest in recruiting students, the program has not grown beyond 5 or 6 students. The college is discussing moving the program to Arts and Sciences within the undergrad business program.

6. Action Plan for 2006-2007

Interior Architecture:

Respond to NASAD Site Visitor's Report

Gather data for CIDA self study

Begin writing CIDA self-study – Spring and Summer 2007

Bachelor of Fine Arts in Imaging

Respond to NASAD Site Visitor's Report

Bachelor of Facility Management

Phase out program.

College of Arts and Sciences

Department of Humanities, Social Sciences and Communication

Humanities, Social Sciences and Communication Department (HSSC)
Objectives and Outcomes Assessment
Summary 2005-06

Action Plan for 2005-06

1. Maintenance of the department's cycle of regular written-work evaluations for student writing. This year, English Composition and World Masterpieces I will be evaluated. If possible, evaluation will also be conducted for Foundations of the American Experience, and Development of the American Experience. If this is not possible, these evaluations will be made the following year.
2. Finalization of the Psychology assessment plan, and its initial implementation.
3. Visitation of new full-time post-doctoral instructors.
4. Further exploration and development in HSSC of instructional features related to Leadership/Teamwork education.

In accordance with the year's Action Plan, HSSC faculty members continued to implement the department's approved standards for grading student written work. These standards are represented by the **Banned Error List** and the HSSC **Guidelines for Writing Papers** (see attachments to the report for 2002-03). Both documents are distributed to all Composition students, as well as to those taking other courses in the Core Curriculum where writing is emphasized.

1. **Maintenance of the department's cycle of regular written-work evaluations of student writing**.

The three-year assessment cycle in HSSC is complicated by the omnibus nature of the department. Programs include the Core Curriculum, plus majors in technical and professional communication, psychology, and humanities. In the previous year, English Fundamentals was evaluated (COM 0094). As well, development of assessment strategies for the new psychology degree program got underway.

In the three-year cycle, the focus this year was on English Composition (COM 1103), and World Masterpieces I (LLT1213). These Core courses--or their equivalents approved for transfer credit--along with Foundations of the American Experience, Development of the American Experience, Economics and Technical and Professional Communication make up HSSC's contribution to the Core Curriculum.

Key to these courses is an emphasis on writing proficiency. Again, both the Banned Error List and HSSC Guidelines for Writing Papers serve as the general basis for evaluating student written work. At the end of the Fall semester 2005-06, the core coordinator for English collected the final papers of every student taking English Composition, a total of 199 papers. Using criteria based on the BEL and Guidelines, the papers were evaluated as follows. Arranging for the deletion of names of both students and their instructors, the coordinator numbered the papers 1-199, then created a

spreadsheet with 1-199 down the left column. At the top of the sheet the coordinator listed categories of evaluation: introduction, conclusion, thesis, paragraph structure, three or fewer banned errors, and citational form. At two meetings, the papers were divided among full-time and adjunct faculty. All faculty members used the spreadsheet to evaluate the essays for effectiveness. The statistical results of this procedure are currently being tabulated by Ann Thomas.

At the end of Spring semester, the final essay written by each student enrolled in World Masterpieces I was also collected. During the week preceding the first class day of the Fall 2006-07 academic year, these essays will also be analyzed in the manner described above. At that time, the results of this work along with the tabulated results of Composition essays will be distributed at a meeting within HSSC. The purpose will be to aid in establishing a plan of action for improving the performance of students taking English Composition. This assessment meeting before the beginning of the Fall semester will be required of all faculty involved in teaching the courses, both full-time and adjunct. NOTE: in the Spring of 2007, this procedure will be applied to essays collected from all students taking World Masterpieces II.

Preliminary review of this student work suggests the existing program is making a successful contribution to the department's and the university's goal of graduating literate, capable writers. This judgment is supported by the essentially encouraging initial results of those who have taken the recently instituted **Writing Proficiency Exam.** As is always true, there is room for improvement, but this year's assessment review of student writing serves to validate the wisdom of LTU's commitment to the writing-intensive aspects of the Core Curriculum.

2. **Finalization of the Psychology assessment plan and its initial implementation**

Dr. Matthew Cole, director of LTU's new degree program in psychology is responsible for formulating and seeing to the implementation of an assessment strategy for psychology students. His plan is described in Attachment One of this report (please see below).

3. **Visitation of new full-time post-doctoral instructors.**

Department chair Dr. Betty Stover evaluated the classroom methods of Dr. Stephen Schillinger, the department's first-ever post-doctoral lecturer. Her comments are provided in this report as Attachment Two (please see below).

4. **Further exploration and development in HSSC of instructional features related to Leadership/Teamwork education.**

In coordination with the university-wide Assessment Committee, the department has identified both goals and strategies for making its contribution to LTU's commitment to a more programmatic emphasis on leadership/teamwork education. These plans are detailed in the "Undergraduate Educational Goals and Assessment Strategies" working

draft of April 13, 2006. This document specifies related goals, strategies for meeting said goals, the responsible academic unit, the year in the degree program where specific learning is to take place, and a timeline for implementation. The document is included at the end of this report as Attachment Three (please see below).

Additional comments relevant to HSSC and assessment

1. Joyce Munro has been made coordinator of the Writing Proficiency Examination. She is responsible for organizing and managing both the administration and evaluation of the essay that must now be successfully written by all LTU students as a requirement for graduation. In this capacity, Munro will be well positioned to serve as a valuable resource in fine-tuning our writing program. The department looks forward to learning from her efforts.

2. Instances of plagiarism continue to trouble the waters navigated by those charged with teaching writing at LTU. The simplicity of cut-and-paste methods applied to the almost limitless resources of the Internet has greatly exacerbated this perennial problem. Unless and until methods are developed for thwarting these efforts, instruction will continue to suffer as writing teachers waste time hunting down sources of stolen intellectual property. Cheating is not new, but the impact of technology has significantly magnified the problem.

Action Plan for 2006-07

1. Maintenance of the department's cycle of regular written-work evaluations for student writing. This year, Technical and Professional Communication, Foundations of the American Experience and Development of the American Experience will be evaluated. As noted above, World Masterpieces I essays collected the previous spring will be evaluated in the Fall. The same procedure will apply when World Masterpieces II essays are collected in the spring.
   Tech/Prof Comm evaluation will include a review of progress related to recommendations made in last year's report by the Oral Communication Assessment Committee, chaired by department member Kevin Kelch.
2. Initial evaluation of the Psychology assessment plan.
3. Visitation of second full-time post-doctoral instructor.
4. Initial implementation and development in HSSC of instructional features related to Leadership/Teamwork education (see Attachment Three of this report).

Evaluation of the Psychology Program at Lawrence Technological University

For The 2005-2006 Academic Year

Matthew L. Cole, Psychology Program Director

Department of Humanities, Social Sciences, and Communication

Submitted to the Dean of the College of Arts and Sciences, Summer 2006

Accreditation bodies require ongoing self-evaluation and improvement, if necessary, by universities. For example, The Handbook of Accreditation, Third Edition (2003) of The Higher Learning Commision, A Commision of the North Central Association of Colleges and Schools (which accredits Lawrence Technological University; LTU) states that, "The organization's ongoing evaluation and assessment processes provide reliable evidence of institutional effectiveness that clearly informs strategies for continuous improvement" (criterion 2c, p. 6). Furthermore, "The process of accreditation provides the accredited organization with an opportunity for critical self-analysis leading to improvement in quality…" (p. 10). In accordance with these requirements, LTU's Dean of the College of Arts and Sciences has directed departments to evaluate their programs. The present report is the annual evaluation of the Department of Humanities, Social Sciences, and Communication's psychology program for the 2005-2006 academic year.

This annual evaluation of LTU's psychology program was conducted at the end of the 2005-2006 academic year as part of the University's ongoing program evaluation and academic quality improvement program. Plan for the evaluation was derived from recommendations presented in the 2004-2005 psychology program assessment plan. The following areas of the psychology program are directed for assessment annually: faculty competence, course design, course instruction, student writing, student knowledge of psychology, and student employment and acceptance in graduate school upon graduation from LTU. In the 2004-2005 assessment report, all areas with the exception of student knowledge of psychology were assessed via class visitation by psychology program director, examples of student writing, and interview of one graduating student. Recommendations from the 2004-2005 assessment included the following: development

of a standardized multiple choice examination to assess students of knowledge of psychology, modification of the Introductory Psychology course, and improvement of the Clinical Psychology course. In response to these recommendations the psychology program is completing a general knowledge of psychology multiple choice assessment tool; is modifying the Introductory Psychology course, including designing a hybrid section with the help of a VITRC faculty grant to the psychology program director, Matthew Cole; and has modified the Clinical Psychology course in conjunction with clinical psychologist Kathy Tiell, a new Associate Professor of Psychology.

The standardized multiple choice examination is still in development and a quantitative assessment of student knowledge of psychology is therefore not yet available. As such, the present report presents assessment results from (1) examples of research reports from a random selection of current students, and (2) structured exit interviews from five psychology majors who graduated May 2006.

Method and Results

Assessment of Student Ability to Disseminate Research in Written Form

A random sample of ten research papers completed by psychology majors from Behavioral Neuroscience Laboratory, Cognitive Psychology Laboratory, and Research Methods For the Behavioral Sciences were assessed. All students demonstrated competence in the dissemination of the results of respective experiments according to the style and formatting of the American Psychological Association. All students also demonstrated writing skills at the B level according to the *HSSC Guidelines for Writing Papers*.

General Procedure For Administration of the Psychology Program Exit Interview

Five graduates were contacted by the psychology program director via the telephone on July 2006 to complete a structured exit interview. The structured interview was comprised of questions related to employment, graduate school, and the psychology program, and survey items related to psychology program faculty, courses and general knowledge of psychology. The interview was completed in approximately 15 minutes.

Demographic Characteristics and Employment/Graduate School

Demographic characteristics and results of questions related to employment and graduate school are presented in Tables 1a-1e. Demographic characteristics include gender, major (if double major), psychology academic plan, major at LTU prior to psychology, and where student completed an internship. Students were asked questions concerning employment at time of interview and plans for graduate school. As shown, three female and two male graduates were interviewed. Two of the five were enrolled as double majors at LTU: psychology + business and psychology + humanities. Three graduates followed the clinical/general psychology academic plan; two followed the industrial/organizational psychology academic plan. All graduates started their education at LTU as non-psychology majors (architecture = 2, computer science = 2, technical and professional communication = 1). Four out of the five graduates participated in the psychology internship program and are currently working. Of the graduates that are working, all but one are working at jobs related to their psychology degree (e.g., human resources). Finally, all graduates are planning on attending graduate school, and two have been accepted and should be starting in the Fall.

Table 1a. Graduate one.

Gender	Female
Major	Psychology + Business

Academic Plan	Industrial/Organizational
Major prior to psychology	Architecture
Internship?	DTE, working with an industrial psychologist in testing
Current Job	Director of human resources for Dana Corp in Michigan
Accepted to graduate school?	No
Planning grad school?	Yes
Major in graduate school	Industrial/Organizational Psychology

Table 1b. Graduate two.

Gender	Female
Major	Psychology
Academic Plan	General/Clinical
Major prior to psychology	Architecture
Internship?	No
Current Job	Preparing for graduate school
Accepted to graduate school?	Yes
Planning grad school?	n/a
Major in graduate school	Social Psychology

Table 1c. Graduate three.

Gender	Female
Major	Psychology + Technical & Professional Com.
Academic Plan	General/Clinical
Major prior to psychology	Technical and Professional Communication
Internship?	Irvine Neurorehabilitation Institute in Southfield
Current Job	Administrative specialist for Orkin pest control
Accepted to graduate school?	No
Planning grad school?	Yes
Major in graduate school	Clinical Psychology

Table 1d. Graduate four.

Gender	Male
Major	Psychology
Academic Plan	Industrial/Organizational Psychology
Major prior to psychology	Computer Science
Internship?	Irvine Neurorehabilitation Institute in Southfield
Current Job	Human resources specialist for marketing firm in Troy
Accepted to graduate school?	Yes
Planning grad school?	n/a
Major in graduate school	Masters of Business Administration

Table 1e. Graduate five.

Gender	Male
Major	Psychology + Humanities
Academic Plan	General/Clinical
Major prior to psychology	Computer Science
Internship?	Ann Arbor Neurorehabilitation Centers
Current Job	Manager at a cyber café
Accepted to graduate school?	No
Planning grad school?	Yes
Major in graduate school	Industrial/Organizational Psychology

Exit Interview Open-Ended Questions

The psychology program director interviewed the five graduates on July 2006 over the telephone. In addition to survey items (presented below), eight interview questions were presented to assess program competence as well as suggestions for improvement in the following areas: critical thinking, research skills, scheduling of courses, design of courses, and program quality. Interview questions were derived from Auburn University and Cameron University psychology program exit interviews, and from results of the LTU 2004-2005 psychology program assessment exit interview. Questions and responses are presented in Table 2. As shown, interviewees generally perceived the program as enhancing critical thinking and research skills via experiments and subsequent research reports, with the general consensus that more experiments and more research be conducted. Graduates thought the psychology course schedule was acceptable, but recommended the following: offering more mid-day and evening courses; offering courses on religion, sexuality, marketing and advertising; improving the clinical psychology course to include more training on clinical interventions and psychotherapy; improving the research methods course to include more training on experimental techniques; and improving the sequence of the psychology curriculum from the Freshman to Senior years. Graduates reported strengths of the program as including small class size,

student engagement in discussions, advising, enthusiasm and competence of instructors, and variety of courses. Finally, graduates made the following recommendations to improve the program: inclusion of more experiments in laboratory sections and research methods course; scheduling a psychology presentation day so that majors can present research to the campus; and the inclusion of research projects in the field (e.g., observing behavior in schools or zoos).

Table 2. Exit interview open-ended questions and responses from five graduates.

Comment on how the program enhanced your critical thinking skills.

1. I had to give written responses on how topics and concepts were connected.
2. I had to look at different sides of a situation before coming to a conclusion.
3. Helped me to distinguish between different disorders, helped me to improve making judgements.
4. Helped me to conduct extensive research on the topics and authors I needed to discuss.
5. I had to do independent research and present the results in class discussions.

Comment on the program could be improved to enhance critical thinking skills.

1. Implement more student presentations, have students comment on their peers' presentations.
2. Incorporate different teaching skills to improve student interactions.
3. I suggest you incorporate techniques similar to those I experienced in my Development of the American Experience class such as more hands-on work and more textbooks and literature that presents the main arguments of a researcher.
4. More types of projects where students need to look at opposing views; debates as a class project optional public debates on psychology topics presented in front of an audience.
5. Incorporate more group activities that require students to engage among themselves in order to gain an understanding from each other.

Comment on how the program enhanced your research skills.

1. The assignment of multiple research papers in each laboratory course.
2. Writing research papers and conducting experiments in the labs.
3. The experiments with Betta Splendens that I did in the Behavioral Neuroscience Lab, and the research that I did in the library to compile the references that I used in my research paper.
4. Have statistics and research analyses be incorporated into more psychology courses.
5. Completing the experiments and writing research reports on the results of the experiments.

Comment on how the program could be improved to enhance research skills.

1. Have instructor(s) model research.
2. Have research methods be introduced to psychology majors earlier in the curriculum.
3. More hands-on experiments, such as the experiment with the fish.
4. Have students complete more research papers that require statistics.
5. Have students run more experiments from data collection to analyses.

Table 2. (continued).

Comment on the scheduling of courses and identify ways in which changes in scheduling might better serve students' needs.

1. Increase the scheduling of more duplicate am and pm courses.
2. The schedule was fine but I think there needs to be more pm courses.
3. I think the schedule is fine.
4. The progression of courses from freshman through graduation needs to be organized better.
5. There doesn't seem to be enough afternoon courses.

Are there any areas that are not sufficiently covered in the psychology program, and if so, please identify any courses you would add to the program.

1. Human resources specifically as it related to psychology; Psychology of advertising and marketing; Psychology of religion
2. Intro needs to cover a wider overview and broader range of the different areas covered in psychology; sexuality class, survey course that covers race and personality and daily issues.
3. None lacking in the I/O area.
4. Developmental psychology; more research and more work on techniques; class where student actually learns how to conduct interventions.
5. Major improvement in clinical psychology—more instruction on how to conduct therapy.

Comment on what you perceive as the strengths of the program.

1. Student involvement in lectures—good engagement; class size is a strength; availability of psychology advisor; the variety of courses offered.
2. Program appeals to students that might have a goal for a technical education but decide to switch majors, so it offers an alternative that is still technical in nature.
3. Small classes so that you can you have face-to-face discussions; enthusiasm of professors and psychology program director and their knowledge base and willingness to help a student grasp a theory.
4. Small class size; one on one focus; courses covered the topics that were mentioned in the syllabus.
5. The more popular courses were great (drugs and behavior, behavioral neuroscience, social psychology); instructors, small class size—the smaller the better.

Comment on aspects of the program that you believe should be changed or added.

1. Laboratory courses should include more experiments.
2. Nothing added; changes include the scheduling with more afternoon courses; more experiments and more data collection; have a psychology day to present results; more speakers on psychology.
3. Program did not challenge me enough and maybe that's because there was a lot of overlap in my plan of work; there should be more problem solving tasks, e.g., picking a current event or problem and researching and presenting a solution.
4. Needs to be more experiments, more research, and more hands-on experience; in comparison to other majors it seems that the psychology program needs more of an identity; needs to be more research that we can do and that we can showcase to the rest of the university.
5. More experiments, more laboratory exposure, more hands-on, and more field work.

Exit Interview Survey Items

Graduates were asked to rate on a scale of 1-5, poor-excellent, 21 items that assessed their experiences as a psychology major (see Table 3). Survey items were derived from Auburn University, Cameron University, and Wayne State University exit interviews, as well as from the 2004-2005 LTU psychology program assessment. Survey items were organized into three broad categories: Faculty ("Regarding the psychology program instructors …"), Knowledge of psychology ("How well did the psychology program …"), and Miscellaneous related to the psychology program ("Rate the following …"). As shown, graduates rated the mean overall quality of the psychology program as 4.2. In general, mean ratings were high (range = 3.4-4.8), with the highest ratings provided for the following items: Relationship with advisor, Preparedness of instructors, and Fostering understanding of psychology as a scientific field; the lowest ratings were provided for the following items: Fostering understanding of cultural diversity issues; Providing knowledge in the area of abnormal psychology; Providing knowledge in the area of animal learning; and Scheduling of courses.

Table 3. Responses to survey items from exit questionnaire: raw scores, mean, standard deviation.

	G1	G2	G3	G4	G5	Mean	SD
Faculty: "Regarding the psychology program instructors …"							
Quality of instructors	3	4	4	4	4	3.8	0.45
Availability of instructors	5	4	5	4	4	4.4	0.55
Preparedness of instructors	5	4	5	4	5	4.6	0.55
Competence of instructors	4	3	5	5	5	4.4	0.89
Knowledge of psychology: "How well did the psychology program …"							
Foster understanding of mental illness	4	5	4	4	5	4.4	0.55
Foster understanding of cultural diversity issues	3	4	4	3	3	3.4	0.55
Provide opportunity to interact with other psychology majors	3	5	5	4	3	4.0	1.00
Foster understanding of psychology as a scientific field	4	5	5	5	5	4.8	0.45
Foster understanding of psychology as an applied field	4	3	4	5	5	4.2	0.84
Prepare me for my career	3	3	5	4	4	3.8	0.84
Enhanced critical thinking	4	5	5	4	5	4.6	0.55
Promoted competence in research skills	4	2	4	5	4	3.8	1.10
Provided knowledge in the area of abnormal psychology	3	4	4	4	3	3.6	0.55
Provided knowledge in the area of animal learning	3	2	3	5	4	3.4	1.14
Provided knowledge in the area of developmental psychology	4	4	4	5	5	4.4	0.55
Provided knowledge in the area of history & systems of psychology	3	4	4	5	4	4.0	0.71
Provided knowledge in the area of social psychology	4	4	4	5	5	4.4	0.55
Provided knowledge in the area of statistics	3	3	4	5	5	4.0	1.00
Psychology Program: "Rate the following …"							
Relationship with advisor	4	5	5	5	5	4.8	0.45
How well psychology courses were scheduled	3	5	3	3	4	3.6	0.89
Overall quality of the psychology program	3	5	5	4	4	4.2	0.84

Discussion

In accordance with accreditation criteria as set forth by the The Higher Learning Commission, A Commission of the North Central Association of Colleges and Schools, the goal of this report was to evaluate the psychology program at LTU. Results of the psychology program 2004-2005 assessment recommended the development of a standardized multiple choice test to assess student's general knowledge of psychology, assessment of student ability to disseminate to research in written form, and the administration of an exit interview to assess student placement in academic and professional settings. The psychology program responded to these recommendations as follows: a general knowledge of psychology multiple choice assessment tool is in development; modification of the Introductory Psychology course, including designing a hybrid section with the help of a VITRC faculty grant to the psychology program director, Matthew Cole; and modification of the Clinical Psychology course in conjunction with a new Associate Professor of Psychology, clinical psychologist Kathy Tiell

This report presents results of the 2005-2006 psychology program assessment via examples of current student writing and responses by five recent graduates on a structured exit interview. Research reports from ten juniors and seniors displayed exceptional quality in APA-style form and content, and at least B-level writing according to the *HSSC Guidelines for Writing Papers.* Results from the structured interview suggest the psychology program is enhancing student critical thinking, research skills, and general knowledge of various topics related to psychology. The psychology program also appears to be adequately preparing graduates for employment in a variety of fields related to psychology as demonstrated by the employment outcome of the five graduates

assessed in the current report. Finally, 40% of the graduates reported graduate school acceptance, whereas 100% of the graduates plan on attending graduate school.

Recommendations

In accordance with recommendations set forth by The Higher Learning Commission, an additional goal of this report is the description of areas of self-improvement. The following recommendations will be initiated:

- Completion of The LTU Psychology Program Knowledge of Psychology Assessment Tool. Development of the tool will include establishment of sound psychometric properties (i.e., reliability and validity).
- Continued modification of the Introductory Psychology course to include increased focus on research methods by having students engage in experiments and introductory statistics. The HSSC department has budgeted for the acquisition of psychology laboratory software that all psychology majors will have installed on their laptops (PsychMate from Psychology Software Tools, Inc.).
- Modification of all laboratory co-requisites (Behavioral Neuroscience, Cognitive Psychology, Sensation and Perception) and the Research Methods For the Behavioral Sciences course to include more experiments and subsequent statistical analyses. Currently, each lab course has students complete one major experiment and one major APA-style research paper. The labs will now require students to complete two experiments and two research papers.
- Review of the schedule of psychology courses to include more afternoon courses where possible.

- Review of the sequence of psychology courses from the Freshman to Senior years.
- Meet with the Dean of the College of Arts and Sciences and the HSSC chair to consider additional new psychology courses, such as Psychology of Religion, Clinical Intervention, and Behavioral Assessment.
- Work with the Dean of the College of Arts and Sciences and Department Chairs to establish an Institutional Review Board that will oversee the ethical and procedural concerns of human subjects research.

College of Arts and Sciences

Department of Mathematics and Computer Science

Assessment Report: 2005 – 2006
Department of Mathematics and Computer Science
College of Arts and Sciences
Lawrence Technological University

1. Program Educational Objectives, Outcomes, and Accreditation Status

unchanged from 2002-2003 assessment report

2. Assessment Activities and Assessment Results

During the academic year 2005-2006, the Department of Mathematics and Computer Science remained active in several areas where previous assessment efforts had been made and began plans in some new areas.

a) Assessment of Placement of Students upon Entering Lawrence Tech

Activity:
Previous results had indicated a lack of correlation between placement and grades in courses. Professor Bashkem Zendeli has been working on early assessment in lower level courses to make sure students are actually in the correct course.

b) Assessment of Student Performance in Basic Studies

Activity:
The department continued common final exams in Intermediate Algebra during Fall 2005 and Spring 2006. Professor James Nanny constructed and graded these exams.

Result:
These exams still appear to indicate both that the students were successful in attaining required skills in this course and that all sections of the course seemed to be emphasizing the same skills successfully.

c) Assessment of Student Performance in Service Courses

Activity:
The department continued a common final exam in Calculus 2 during Fall 2005 and Spring 2006. Professor William Arlinghaus constructed the Fall Exam and Professor Michael Merscher constructed the Spring Exam. For the first time in the spring, individual instructors graded the exams.

Result:
The performance of the students on this common final exam remains consistent throughout the sections. In some areas student performance is still not considered acceptable as a whole. There was considerable variation in grading

d) Assessment of Student Performance in Major Areas

Activity:
The department has begun analysis of methods to evaluate the success of students in both the mathematics and computer science curricula. Problem sets are being collected for use as a baseline for evaluating student performance. Efforts have begun to use senior project courses as a place to evaluate overall student ability at the end of the degree programs.

e) Assessment of Writing in the Curriculum

Activity:
Writing projects continue in both Mathematical Modeling and Linear Algebra courses.

Result:
Students are able to write effectively, but they need to be encouraged to believe that writing is important as part of their mathematical performance. Too often, they still view writing as a separate activity divorced from their major work.

3. Action Plan for 2006-2007

a) Assessment of Placement of Students upon Entering Lawrence Tech

The department continues to work on a better placement exam.

b) Assessment of Student Performance in Basic Studies

Professor Zendeli is heading the effort to revise our basic studies curriculum.

c) Assessment of Student Performance in Service Courses

The presence of a common final exam in Calculus 2 appears to be established for the foreseeable future. The department will investigate revision of the order in which topics are covered in the first two courses in Calculus to help students acquire knowledge in the areas that have been identified as problems

d) Assessment of Student Performance in Major Disciplines

The department will expand on its efforts to provide an assessment plan for the curricula in Mathematics and Computer Science. One of the major problems is to find a sufficient number of faculty to attend senior project presentations and comment on whether students appear to be sufficiently prepared to succeed after graduation.

e) Assessment of Writing in the Curriculum

Serious analysis of writing will continue in the Mathematical Modeling and Linear Algebra courses. Virtually all instructors have agreed to use the new guidelines developed by the assessment committee of the university to help them guide their students toward better writing by correcting errors in submitted written work. Major analysis of writing will be extended to senior projects. In all these areas, the department is concerned not only with the traditional view of writing but also with the process of writing mathematics cogently and effectively.

f) Assessment of Oral Communication in the Curriculum

In accord with the efforts of the assessment committee of the university, the department wishes to confirm that the students in the mathematical sciences have retained the skills they learned in oral and technical communication. As oral presentations are made in all of Mathematical Modeling, Linear Algebra, and Senior Project, those will be the areas in which first efforts will be made in 2006-2007.

College of Arts and Sciences

Department of Natural Sciences

Department of Natural Sciences
Objectives and Outcomes Assessment
2005 – 2006

1. Program Educational Objectives, Outcomes, and Accreditation Status

The Department of Natural Sciences offers two programs that are accredited by outside agencies. The B.S. in Chemistry (Option 1) is certified by the American Chemical Society, but this certification does not require ongoing assessment of objectives and outcomes.

The Master of Science Education program is accepted by the Michigan State Board of Education. While this acceptance is periodically renewed, it again does not require ongoing assessment of objectives and outcomes. Accordingly, the Department faculty set education objectives and outcomes based on the nature of the individual programs.

Beyond this, the Department participates in the general accreditation of the University by the North Central Association.

Educational Objectives and Outcomes are described in the Departmental Assessment Plan (attached).

2. Assessment Activities and Assessment Results

Attached are the Assessment Plans for the programs offered by the Department of Natural Sciences. Goals, Strategies, Indicators, and Timeline for the Chemistry, Physics, and Master of Science Educations programs are given in the form of a matrix. This and other relevant documents have been posted to the Assessment Blackboard site.

The 2005 – 06 academic year was a year of consolidation for assessment activities in the Department of Natural Sciences. We concentrated on minor refinements of the Assessment Plans and on solidifying the implementation of procedures begun in 2002 - 03.

Physics faculty have now written course objectives for most courses, with the exception of a few early courses taught entirely be adjunct faculty. These objectives are modeled on those written for chemistry courses, and are included (usually by reference) in course syllabi, and distributed at the beginning of the term. This was the first year the department surveyed the students on these objectives, as in chemistry. Rubrics were adapted from the Chemistry department to evaluate writing and oral communication skills.

Chemistry:

I. "Graduates will demonstrate written, oral, and visual communications skills appropriate to laboratory reports, technical writing, and public presentation of scientific information."

Ia. and Ib. Development of writing and lab report rubrics: Rubrics have now been developed and are in use in all courses having written assignments: Expository writing in CHM3452 and CHM 2631/4632 and laboratory reports in CHM2332, CHM3431, CHM3441, and CHM2631/4632. Unless courses are added or their writing requirements changed, this process is now regarded as complete.

Oral communications rubrics have been developed and are in use in all courses in which oral presentations are assigned: CHM3383, CHM4643, and CHM4673. This process is also now regarded as complete.

Chemistry faculty report the results each semester and these reports are entered in the Chemistry Assessment Database. Results will be reported in more detail when more are available, but so far the objective of 80% satisfactory or better performance is being consistently met or exceeded in all courses.

II. "Graduates will demonstrate skill in analytical thinking appropriate to their discipline."

Students have successfully planned and performed an analytical experiment with minimal assistance in CHM 4632.

III. "Graduates will be able to work in teams, and will have opportunities to develop leadership abilities."

After some departmental discussion, it was decided that this goal should be addressed in detail only after the University Assessment Committee has considered the questions of leadership development and teamwork at LTU. Leadership development has now been largely addressed, and teamwork is on the agenda for 2006-07.

IV. "Graduates will feel that they have been effectively prepared for their professional careers."

IVa. Course objectives have now developed for all chemistry courses, including the freshman courses.

IVb. Students were surveyed on attainment of course objectives in following courses with the results listed below:

Course	Term	Average Response	2/3-Yr Running Avg	Course	Term	Average Response	2/3-Yr Running Avg
CHM1154/3144	All	Fa05 (survey not ready in time)	2.04	CHM3434		Fa05	1.56
CHM1213	All	(survey not ready in time)		CHM3431	Sp06	2.59	2.46
CHM1221	All	1.96		CHM3441	Fa05	(not done)	
CHM1223	Sp06	2.73	2.62	CHM3442	(not taught)		
CHM1232	Sp06	2.71	2.65	CHM3452	Fa05	2.25	2.20
CHM2313	Fa05	2.02	2.08	CHM3463	(not taught)		
CHM2323	Sp06	2.17	2.34	CHM3623	(not taught)		

CHM2332	Sp06	2.47		CHM4522	(not taught)		
CHM2342	Fa05	2.29	2.37	CHM4542	(not taught)		
CHM2352	Fa05	2.60	2.73	CHM2631/ 4631/4632			Sp06
		2.50	2.43				
CHM3383	Fa04	(not taught)		CHM4643	Sp06	2.20	
		2.26					
CHM3403	Fa04	(not taught)		CHM4723	(not taught)		
CHM3423	Sp06	(not received for report)					

The indicator for this strategy (2.00) was satisfied in all but two courses. These two courses will need to be evaluated in the next academic year. Only one course was not surveyed, but we still have some progress to make in getting the survey results reported in a timely fashion.

The course objectives are now included in course syllabi (usually by reference) and distributed at the beginning of the term.

IVc. The Department Chair informally interviewed each graduating senior about our programs.

No graduates.

V. "Graduates will demonstrate knowledge in four major division of chemistry."

Vb.The ETS exam was administered to all chemistry graduating seniors. Results are expected in Fall 2006, and the results from 2002 – 2006 will be analyzed in detail at that time. 2004 results for six students showed three scoring above the 50th percentile, vs. our objective of 50%. There appears to be no meaningful correlation with grade point average.

VII. "CHM1154 (Introduction to Chemical Principles) students will be adequately prepared for CHM1213 (University Chemistry 1)."

VIIb. CHM1154 grade / CHM1213 grade correlation study: Analysis of grade data in these two courses is being repeated with a larger grade database. Results so far indicate that a majority of students getting a C or better in CHM1154 are also getting a C or better in CHM1213. The part of the new program that calculates the percentage of students meeting this objective has been finished, and the objective of 80% is being met.

Physics:

I. "Graduates will demonstrate knowledge in the following areas of Physics..."
Ia. No Graduates.

II. "Graduates are satisfied that all areas of Physics listed in goal (I) above have been competently taught."

IIa. (There were no graduating seniors in physics this year.)

IIb. . Students in selected courses will be surveyed at the end of the term as to whether these objectives have been met.

Surveys were written and administrated electronically for the following courses. All courses had student responses greater than 80% confidence in their mastery of the course objectives.

PHY1213/1221	PHY2423/2431
PHY2213/2221	PHY3414 (no results at this time)
PHY2223	PHY3653
PHY2131	PHY3661 (no results at this time)
PHY2413/2421	PHY4724 (no results at this time)

Other physics courses not on this list have not been surveyed at this time.

V. "Graduates will demonstrate the ability to do independent theoretical or experimental research…"

Va. Successful completion of Physics Project courses (PHY4912 and PHY4922)

(There were no graduating seniors in physics this year.)

VII. "PHY1154 (Introduction to Physical Principles) students will be adequately prepared for PHY2413 (University Physics 1) and PHY2213 (College Physics 1)."

VIIb. PHY1154 grade / PHY2213 & PHY2413 grade correlation study: Analysis of grade data in these two courses is being repeated with a larger grade database. Results so far indicate that a majority of students getting a C or better in PHY1154 are also getting a C or better in PHY2413. The percentage of students meeting this objective has been finished and the objective of 80% is being met.

VIIc. PHY 2213 and PHY2413 "Force Constant Inventory" pre-post test: Analysis of the results shows an increase in average and normalized scores, with greater increases for students with low scores on the pre-test. This indicates that this objective is being met.

IX. "Graduates will be able to work in teams, and will have opportunities to develop leadership abilities."

IXa. After some departmental discussion, it was decided that this goal should be addressed in detail only after the University Assessment Committee has considered the question of leadership development at LTU. Some preliminary work has been done to prepare checklists for evaluating leadership in PHY3661 and PHY4781.

Master of Science Education:

Assessment of the MSE program continued to be a low priority due to the fact that the program director has been on sabbatical for this academic year making it difficult to start the assessment according to the existing plan. Evaluation of the plan will begin in 2006-07.

3. Action Plan for 2006 – 2007

The action plan for the Department of Natural Sciences for 2006 – 2007 will be to review and refine the Departmental Assessment Plan as the department gains experience. The plan will be adjusted to adapt for the university goals of assessing leadership and teamwork objectives. Further efforts will be made to increase performance in administering surveys, etc. Also, the Biology department will have to begin developing their assessment plan.

College of Engineering

Department of Civil Engineering

Civil Engineering Department
Objectives and Outcomes Assessment
Summary 2005-2006

1. Program Educational Objectives, Outcomes, and Accreditation Status

The Department of Civil Engineering revised its Objectives and Outcomes during the 2001-2002 Academic year and revisited them in 2006 with the Civil Engineering Advisory Board. The decision was made by the Department with feedback from students and the Advisory Board to keep the objectives and outcomes unchanged. The degree is accredited by ABET and was visited during October of 2004. The program received a full six year accreditation cycle from ABET.

Assessment Tools for 2005-2006

Table I: Assessment tools, description, and performance criteria.

Assessment Tool	Description	Performance Criteria
FE Exam	The FE Exam is a nationally normed exam that provides a direct measurement of student abilities on a topic-by-topic basis. It provides a comparison between LTU examinees and the corresponding results from comparison institutions on a topic-by-topic basis. This emphasizes strong and weak points within the program.	Perform at or above the national average for comparative Carnegie Master institutions.
Exit Interview	The chair conducts exit interviews of graduating students. The exit interviews provide a summative view of what is happening in the department and gives an indication of overall student satisfaction. The exit interview includes a survey form to be filled out by students regarding their education at LTU.	Qualitative evaluation of student satisfaction and concerns. Qualitative as well as direct evidence that we are meeting our outcomes based on survey form.
Advisory Board Interviews	The Advisory Board conducts a group interview or panel discussion of 12 to 15 senior students during Senior Projects Day.	General satisfaction by the Advisory Board that the students meet the published outcomes of the department.
Professional Evaluation of Senior Projects Day	Advisory Board members (and Employers) are invited to attend Senior Projects Day (Spring Semester) to view and evaluate oral presentations of senior projects. Written evaluations of the Senior Design Projects/Presentations are requested from attendees.	General satisfaction by the Advisory Board (and/or employers). A minimum of a 3.5 on a 5 point scale.
Faculty Evaluation of Senior Projects Day	Similar to evaluation of senior projects by Advisory Board however, faculty evaluate Senior Design presentations in both semesters.	General satisfaction by the Faculty. A minimum of a 3.5 on a 5 point scale.
Course Objectives	Learning objectives have been written for each undergraduate civil engineering course. Students are surveyed on their ability to perform objectives at the conclusion of the course.	85% of the students surveyed are capable of performing the desired outcome.
Performance Appraisals	Performance appraisals are assessments of student performance in individual courses. These are opportunistic documented evaluations of student performance that present themselves, but are not included in the routine assessment program.	Case dependent.

Table II: Matrix relating assessment tool to measured Program Outcome.

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)
1.Exit Interviews						X		X	X	X			X
2. Advisory Board Senior Project Eval.			X	X	X		X			X	X		
3. Faculty Senior Project Evaluation			X	X	X		X	X		X	X		
4. Course Objectives	X	X	X	X	X	X	X	X	X	X	X	X	X
5. Performance Appraisals	C	A	S	E	D	E	P	E	N	D	E	N	T

Assessment Results for 2005-2006

During the 2005-2006 academic year, five assessment tools were used to determine if the Program Outcomes are being achieved as indicated in Table I and Table II. With respect to student achievement of individual Program Outcomes, each assessment tool utilized by the department addresses multiple Program Outcomes. Additionally, multiple assessment tools are used to measure each outcome. Therefore, to determine if the Program Outcomes are being met, it is important to systematically consider the entire assessment plan. To accomplish this task, a matrix is generated that indicates the level of student attainment of an outcome based on that particular tool.

The matrix for this academic year is represented in Table III. For a given assessment tool, a number from 1 to 5 was assigned to each outcome that tool is designed to assess. A 1 indicates a low level of student attainment and a 5 a high level of student attainment. These numbers were consensually determined by the faculty based on the results and were limited to half point increments. These values were then used to determine an overall "score" for each program outcome. The overall ranking is not based on an arithmetic mean, but rather a subjective weighting based on faculty input. It is important to note these values are determined by faculty consensus. The faculty decided that any overall score higher than a 3.5 meets program criteria. A score of 3.5 meets the criteria, but with some concern and a 3.0 or lower indicates that the outcome is not obtained for the academic year. Numbers lower than 3.0 are shown in bold font in Table III.

From Table III, it can be seen every Program Outcome met faculty expectations for the given academic year, however three outcomes were of some concern to faculty. The three Outcomes that are lower than desired are Outcome (a) – "*an ability to apply knowledge and principles of mathematics, science, and engineering in the solution of civil engineering problems*", Outcome (b) – "*an ability to design and conduct experiments, as well as to analyze data and interpret results*" and Outcome (f) – "*an understanding and appreciation of all aspects of professionalism including ethical responsibility, participation in professional organizations, and service.*" The low score on Outcome (f) is based on some students not fully understanding that professionalism is more than pride in a profession and behaving in an ethical manner (common student responses). The Department maintains active student

chapters of ASCE, AGC, and Chi Epsilon and all three of those organizations conduct service projects. Therefore, the problem seems to be connecting activities associated with those organizations with professionalism. This is an easily rectifiable concern with additional verbal emphasis placed on all aspects of professionalism and not just ethical behavior. This is being addressed in the ECE4051 Ethics and Professional Issues course and several direct assessment tools (noted as performance appraisals in Table III) were included in the course. The concern associated with Outcome (a) and Outcome (b) are mostly centered around not having good assessment techniques in place to determine student achievement of those outcomes. This will be rectified during the 2006 – 2007 academic year.

One of the key features of the assessment program is the utilization of our advisory board to evaluate our senior projects and then interview a sample of our graduating students. The advisory has continued to do an excellent job in this capacity. This year six advisory board members interviewed our students on the students overall satisfaction with the department and the state of the profession. Feedback from the advisory board was positive. In addition, the students enjoy the opportunity to meet with the Board. Another assessment of overall student satisfaction is the exit interviews with graduating seniors. Overall, the results from the exit interviews were positive.

Table III: Assessment/Outcome Matrix – 2005 – 2006 Academic Year.

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)
Exit Interviews Fall 2005						3		4	4	3			4
Exit Interviews Spring 2006						3.5		4	5	4			5
Advisory Board Interviews						4	4						
Advisory Board Senior Project Spring 2006			4.3	4.3	4.0		4.2			3.7	4.1		
Faculty Senior Project Spring 2006			4.5	4.7	4.6		4.5			4.3	4.4		
Senior Project Oral Pres & Final Report				4			5						
Course Objectives Fall 2005	4	4	4	4	4	4	4	4	4	4	4	4	4
Course Objectives Spring 2006	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Appraisals – Ethics & Prof Issues								4	5				5
Appraisal – Student Organizations						4							
OVERALL	3.5	3.5	4	4	4	4	4.5	4	4.5	4	4	4	4.5

Note: the rankings are on a scale from 1 to 5 with 5 being the highest level of attainment. The numbers are assigned with faculty consensus in 0.5 increments. The OVERALL ranking is not based on an arithmetic mean but rather a subjective weighting based on faculty input.

Interpretation: 4+ meets program goals

3.5 meets program goals, but with some concern

3 or lower indicates outcome not obtained for academic year

I indicates incomplete for the given item

Incomplete or Postponed Activities

None.

2. Action Plan for 2006-2007.

The Civil Engineering Department has a comprehensive Assessment Plan in place to assess student learning, graduate capability to perform published program outcomes, and overall student satisfaction with our program, our facilities, and our instruction. The Assessment Plan is reviewed and adjusted annually by the Civil Engineering faculty under the guidance of the Coordinator of the Civil Engineering Assessment Program, Dr. Donald Carpenter. Table IV includes a timeline for the upcoming assessment. The Assessment Plan is morphing in 2006 to include more direct assessment of student learning and performance appraisals. To facilitate those changes, the Program Outcomes were mapped onto all required courses to determine course coverage (Table V) and then a plan was established for direct assessment of student learning in specific courses. Beginning in fall of 2006, student work will be collected and analyzed in these course to insure program outcomes are being met.

Table IV Civil Engineering Department Assessment Timeline

Assessment Description	**Fall 2006**	**Spring 2007**	**Fall 2007**	**Spring 2008**	**Fall 2008**	**Spring 2009**	**Fall 2009**	**Spring 2010**
1) Exit Interview and Survey	X	X	X	X	X	X	X	X
2) Advisory Board Interviews		X		X		X		X
3) Professional Senior Project Evaluations		X		X		X		X
4) Faculty Senior Project Evaluations		X		X		X		X
5) Faculty Senior Project Progress Evaluations	X	X	X	X	X	X	X	X
6) Course Objectives	X	X	X	X	X	X	X	X
7) Performance Appraisals (Case Dependent)	X	X	X	X	X	X	X	X
8) Direct Assessment	X	X	X	X	X	X	X	X
9) Focus Groups	X				X			
10) COM3000 Writing Proficiency Exam	X	X	X	X	X	X	X	X
11) FE Exam			X				X	

Table V - Course coverage of Program Outcomes for all required courses.

Outcome	ECE 1012	ECE 1013	ECE 1101	ECE 1102	ECE 1413	ECE 3213	ECE 3324	ECE 3424	ECE 3523	ECE 3723	ECE 3823	ECE 4021	ECE 4033	ECE 4051	ECE 4544	ECE 4743	ECE 4761
a	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X
b		X			X		X	X			X	X	X		X		X
c	X	X			X	X	X	X	X	X		X	X		X	X	X
d	X				X		X	X		X	X	X	X		X	X	X
e	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X
f	X				X	X	X	X		X	X			X		X	X
g	X	X			X	X	X	X			X	X	X	X	X	X	X
h	X	X			X	X		X			X	X	X	X		X	
i	X	X				X		X		X	X	X	X	X		X	
j	X	X			X	X	X	X			X	X	X	X			
k	X	X	X	X	X	X	X	X	X	X		X	X		X	X	X
l		X				X		X		X	X				X	X	X
m	X	X			X	X		X	X	X	X			X		X	

Table VI - Course coverage of Program Outcomes for direct assessment.

	ECE 1012	ECE 3213	ECE 3324	ECE 3424	ECE 3523	ECE 3723	ECE 3823	ECE 4051	ECE 4544	ECE 4743	ECE 4761
Outcome	Every Term	06-07	06-07	07-08	07-08	08-09	08-09	Every Term	08-09	06-07	07-08
a	X	X	X	X	X	X	X		X	X	X
b			X	X			X		X		X
c	X	X	X	X	X	X			X	X	X
d	X		X	X		X	X		X	X	X
e	X	X	X	X	X	X	X		X	X	X
f	X	X	X	X		X	X	X		X	X
g	X	X	X	X			X	X	X	X	X
h	X	X		X			X	X		X	
i	X	X		X		X	X	X		X	
j	X	X	X	X			X	X			
k	X	X	X	X	X	X			X	X	X
l		X		X		X	X		X	X	X
m	X	X		X	X	X	X	X		X	

- **Annual assessment cycle insures a mixture of day/night courses.**
- **Multiple measures of each outcome is required and tracked by table coverage.**
- **Faculty teaching the course responsible for collecting assignments, course coordinator is responsible for writing a short summary and presenting to faculty for consensus, and program assessment coordinator is responsible for integrating results into overall assessment program.**
- **ECE1012 and ECE4051 will be assessed during every course offering. The remaining courses are on a three-year rotation.**

Appendix

Civil Engineering Program Objectives and Outcomes

Civil Engineering Program Educational Objectives

The following italicized paragraph represents the current and published Program Educational Objectives for the Civil Engineering Department at LTU:

The mission of the Civil Engineering Department is to offer a program directed toward a broad, high quality, contemporary, baccalaureate educational experience in the civil engineering discipline, in parallel with the guiding principle of the university of "Theory and Practice." The objectives are to offer a program:

- *designed to provide students with a strong understanding of the fundamental principles of engineering;*
- *where students have the ability to identify the problem, formulate and analyze engineering alternatives, and solve the problem individually as well as in a team environment;*
- *that prepares students to apply contemporary computer based skills for the solution of civil engineering problems;*
- *that prepares students to effectively communicate in a professional engineering environment;*
- *that stresses all aspects of professionalism including the need for professional development through life-long learning and the benefits of becoming a licensed professional engineer.*

Civil Engineering Program Outcomes

The following italicized paragraph represents the published Program Outcomes for the Civil Engineering Department at LTU:

The Civil Engineering Department at Lawrence Technological University will offer a program in which our graduates have:

(a) an ability to apply knowledge and principles of mathematics, science, and engineering in the solution of civil engineering problems
(b) an ability to design and conduct experiments, as well as to analyze data and interpret results
(c) an ability to design a civil engineering system, component, or process to meet desired project needs
(d) an ability to function on multi-disciplinary teams including participation in a senior-level design project sequence
(e) an ability to identify, formulate, analyze, and solve engineering problems
(f) an understanding and appreciation of all aspects of professionalism including ethical responsibility, participation in professional organizations, and service
(g) an ability to communicate effectively developed through report writing and in-class presentations
(h) the broad education necessary to understand the impact of engineering solutions in a global, sustainable, and societal context
(i) a recognition of the need for, and an ability to engage in life-long learning
(j) a knowledge of contemporary issues
(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice
(l) an ability to apply the fundamentals of civil engineering to the analysis of an existing project component
(m) an understanding of the benefits of passing the FE exam and becoming a licensed professional

College of Engineering

Department of Electrical and Computer Engineering

Electrical and Computer Engineering Department
Objectives and Outcomes
Assessment Summary 2005-2006

1. Program Educational Objectives, Outcomes and Accreditation Status

The Department of Electrical and Computer Engineering is continuing its assessment activities since the major accreditation visit in Fall 2004 from ABET (Accrediting Board of Engineering and Technology), which resulted in the accreditation of both the Electrical Engineering and the Computer Engineering program until September 2011. The Department of Electrical and Computer Engineering [LTU-ECE] assesses the following stakeholders regarding the status of the department on a regular basis:

- Students
- Faculty
- Alumni
- Industrial Advisory Board (IAB)
- Employers

The order of the stakeholders is the order of the significance of that stakeholder. Hence, students are assessed more often than employers, since they are the major stakeholders of LTU-ECE.

The Department of Electrical and Computer Engineering developed the following mission statement (also known as the "objectives of LTU-ECE") in April, 2000, which is posted on the website of the faculty, and in the catalog.

"Our mission in the Electrical & Computer Engineering Department is to graduate students, who

- *possess problem solving and critical judgment skills needed to be competent citizens in an ever increasingly technological society.*
- *are able to undertake entry-level electrical engineering projects.*
- *are capable of growing in competence and responsibility.*
- *are prepared to undertake graduate study."*

This mission statement was reviewed by a major stakeholder (the Industrial Advisory Board) in September 2002, May 2003 and October 2004. A subsequent review is expected in Fall 2006, whose objective is to revise the mission statement in conjunction with the university-level Educational Goals document architected by the LTU Assessment Committee during the Spring 2006 semester.

The Electrical and Computer Engineering Department also regularly revises its educational outcomes. Originally there were twelve outcomes, inspired by the generic ABET recommendations. However, since then multiple changes have been issued. Ongoing attention is given outcomes addressing the understanding of the entrepreneurial engineering process, which process remains increasingly important in light of LTU's efforts to increase entrepreneurial content in the engineering curricula.

The most recent outcomes and objectives are as follows.

III. Electrical Engineering Educational Outcomes

All EE graduates MUST have:

1. an ability to apply knowledge of mathematics, science, and engineering;
2. an ability to design and conduct experiments, as well as analyze and interpret data;
3. an initial ability to design an electrical system, component or process to meet predetermined design requirements;
4. an ability to function as a member of a multi-disciplinary team;
5. an ability to identify, formulate, and solve electrical engineering problems;
6. an understanding of professional and ethical responsibilities of electrical engineers;
7. an ability to produce effective oral, graphical and written communication;
8. a broad education necessary to understand the impact of engineering solutions in a global and societal context;
9. a recognition of the need for, and the ability to engage in life-long learning;
10. a knowledge of contemporary, technical issues;
11. an ability to use modern techniques, skills and tools of electrical engineering;
12. an ability to plan, design, simulate, fabricate, construct, and test circuit hardware;
13. an ability to plan, design, test, and debug systems consisting of both software and hardware;
14. an understanding of the entrepreneurial engineering process, which includes project management, business plan selection and construction, teamwork, and communication skills.

III. Electrical Engineering Educational Objectives

To graduate electrical engineering students who:

1. possess the problem-solving and critical judgment skills required of competent citizens in an increasingly technological society;
2. are able to undertake entry-level engineering projects in local industry;
3. are capable of growing in competence and responsibility;
4. are prepared to undertake graduate study.

IV.

V. Computer Engineering Educational Outcomes

All CE graduates MUST have:

1. An ability to apply knowledge of mathematics, science, and engineering;
2. an ability to design and conduct experiments, as well as analyzes and interprets data;
3. an initial ability to design a computer system, component or process to meet predetermined design requirements;
4. an ability to function as a member of a multi-disciplinary team;
5. an ability to identify, formulate, and solve computer engineering problems;
6. an understanding of professional and ethical responsibilities of computer engineers;
7. an ability to produce effective oral, graphical and written communication;
8. a broad education necessary to understand the impact of engineering solutions in a global and societal context;
9. a recognition of the need for, and the ability to engage in life-long learning;
10. a knowledge of contemporary, technical issues;
11. an ability to use modern techniques, skills and tools of computer engineering;
12. an ability to plan, design, simulate, fabricate, construct, and test circuit hardware;

13. an ability to plan, design, test, and debug systems consisting of both software and hardware;
14. an ability to design and develop programs and hardware for microcontrollers and real time computer systems, and the ability to do computer program development;
15. an understanding of the entrepreneurial engineering process, which includes project management, business plan selection and construction, teamwork, and communication skills.

VI. Computer Engineering Educational Objectives

To graduate computer engineering students who:

1. possess the problem-solving and critical judgment skills required of competent citizens in an increasingly technological society;
2. are able to undertake entry-level engineering projects in local industry;
3. are capable of growing in competence and responsibility;
4. are prepared to undertake graduate study.

The ECE program flowcharts have also been revisited. After discussions throughout the entire Spring 2006 semester, major improvements have been issued, which include the accommodation of a new course that merges a previously separate course and lab. The first official release of the new flowchart was issued on May 22, 2006.

2. Assessment Activities and Assessment Results

LTU-ECE assesses the five identified stakeholders on a stated calendar, which is also discussed at regular meetings with all the stakeholders.

A. STUDENTS

This frequent feedback gained from student-related assessment is a smaller loop with more chances for improvement. During the 2005-2006 academic year, students were participating in the following assessment efforts:

a) **End-of-course test verifying the emphasis of outcomes in the course (a.k.a. Direct Assessment).** There are two direct assessment tools actively in use; these include FE-style exams given in select courses, and the direct evaluation of the senior project capstone project design sequence. The FE-style direct assessment tool has been designed so that almost all of the outcomes are directly addressed by one or more of the exams in the tool. Since most outcomes are covered, this assessment tool is considered to be the major assessment tool in the program. For each of the core courses, course coordinators make up an FE-type exam of three multiple-choice questions. (For courses taught outside the ECE department, exams are made up by a designated faculty member and administered and graded by the course instructors.) Each question is carefully constructed so that it directly addresses one or more specific outcomes. Rather than testing students, each exam is testing specific outcomes. A high score means that most students in all sections of the course answered the question correctly. This means that the outcomes addressed by the question have been demonstrated. A low score implies the outcome has not been achieved, and corrective action of some sort is indicated. These tests are administered at the end of each term, and as of this writing, two

cycles of testing have been completed. Like the indirect assessment, the direct assessment is also used to ensure that the individual program outcomes are represented in the courses at an appropriate level, and that all outcomes are sufficiently covered by the program.

The ECE Department's decision in Spring 2004 was to conduct direct assessment in the fall semester of an odd-numbered year. The direct assessment run in the Digital Electronics course provided valuable feedback for curriculum improvement. Among the interesting facts learned, it was concluded that

- the coverage of number systems in the course needs to be intensified.
- the experimental coverage of ethical issues was a success; the correctness of student answers to the targeted direct assessment question was 60%.

Direct assessment remains to be the assessment tool most closely linked to student performance that is not based on exam results.

b) **End-of-course assessment of the professor and course.** This assessment has been ongoing for twenty years, is on reserve in the LTU library, and is not based on the stated mission of LTU-ECE. Two primary questions are typically scrutinized: how well does the instructor know the material, and how well does the faculty member impart the material. The scale is 0-4. Numbers over two are considered 'good', and numbers under one are considered 'bad'. The numbers between 1 and 2 are considered average. This tool is primarily utilized to screen new faculty members by the chairman to identify potential problems before they expand.

c) **Exit interview just prior to graduation for LTU-ECE.** This assessment was conducted during both semesters of the 2005-2006 academic year – per definition, whenever students graduate. The results were processed and analyzed by Dr. Anneberg; the questions and the summary of the findings follow:

1. What is your career plan after your graduation from LTU?

   100% of students participating in the exit interview (referred to merely as "students" henceforth) has work and/or further education plans.

2. What courses, programs, labs, projects have prepared you the most for your career plan?

   Senior Projects, Electronics, Control Systems and Math

3. In how many "team projects" have you participated at LTU?

   Mostly Senior Projects and labs.

4. Have you taken the Fundamentals of Engineering [FE], Professional Engineering [PE] or other standardized engineering tests outside the school?

   50% no, 22.2% yes, 27.8% maybe.

5. Have you attended any non-technical societal or community activities as an LTU engineering student?

   44% yes, 56% no. Examples: LTU Hockey, LTU Basketball,

volunteering, international night dinners, SAE Shields fundraisers, frat party, organization

6. Are you aware of engineering affiliations or societies related to your major? Are you a member of any technical society?

   83% yes, 17% no. Examples: HKN, IEEE, SWE, SAE.

7. Have you participated in any significant learning/working experience - outside of required course activities - to enhance your engineering abilities?

   39% no, 61% yes. Students considered work or internships to be significant sources of experience.

B. FACULTY

Each LTU-ECE professor has an assignment for the LTU-ECE CQI process:

- Dr. John Boyse - department chairman, oversees the department's CQI efforts.
- Prof. Ron Foster – director of the new Biomedical Engineering program.
- Dr. Lisa Anneberg - coordinator of computer engineering CQI efforts.
- Dr. Michael Cloud - coordinator of entire department CQI efforts.
- Dr. Peter Csaszar - responsible for maintaining the archive and the semi-official website of the entire CQI efforts.
- Dr. Robert Farrah - coordinator of self-study document CQI efforts.
- Dr. Hassan Hassan - coordinator of alumni stakeholder CQI efforts.
- Dr. Richard Johnston - coordinator of graduate program CQI efforts.
- Dr. William Kolasa - coordinator of alumni stakeholder CQI efforts.
- Prof. Kelvin Shih - coordinator of faculty stakeholder CQI efforts, and direct assessment coordinator.
- Dr. Joseph Asik - coordinator of action item: laboratory improvement.

C. ALUMNI

No alumni survey was sent out in the 2005-2006 academic year.

D. INDUSTRIAL ADVISORY BOARD

On April 10, 2006, Dennis Bogden, an executive at General Motors, gave a guest lecture in a class meeting of the Embedded Systems lecture. The technical contents were followed by an extensive and very successful Q&A discussion, where students had a chance to receive first-hand information as to what is required from a starting development engineer in an automotive industrial setting. It has been recommended that Mr. Bogden become part of the ECE Department's prestigious Industrial Advisory Board; based on the invaluable information he can provide the department as a result of his current position at GM.

E. EMPLOYERS

An interview is typically arranged with high level personnel in several companies that hire LTU electrical engineering graduates. The interviews conducted during the 2005-2006 academic revealed that ECE graduates scored high (around 2.5 out of 3, with the

scale being 0: not satisfactory, 1: satisfactory, 2: above average and 3: exceptional) in terms of overall performance, and also with respect to quality of work, attitude & ethics, dependability and the ability to solve problems. One of the employer respondents commented that "I find the practical knowledge of LTU grads to be very strong & very refreshing." The ECE Department is striving to keep the practical abilities of graduating students high-quality.

3. CONCLUSION AND FUTURE PLAN

The LTU Electrical and Computer Engineering department will continuously improve, and has a detailed plan outlined above for accomplishing this task. Assessment of the outcomes is a part of the plan, and must continuously be undertaken in order to ensure that the mission, the stakeholders, and LTU-ECE remain responsive to the changing environment. The assessment policies put in place assure that the department will not "let its guards down" after the Fall 2004 ABET visit, but keeps its continuous quality improvement and assessment culture up to par. The outlook for the success of future process improvement based on the regular feedback from the assessment of constituencies remains positive.

College of Engineering

Department of Engineering Technology

Engineering Technology Department
Objectives and Outcomes Assessment
Summary 2005-2006

1. Program Educational Objectives, Outcomes and Accreditation Status

The Engineering Technology Department is in a stage of transition. The department is responsible for four associate degree programs and two bachelor degree programs. The four associate degree programs are;

- Associate of Science in Mechanical Engineering Technology
- Associate of Science in Manufacturing Engineering Technology
- Associate of Science in Construction Engineering Technology
- Associate of Science in Communications Engineering Technology

The four bachelor degrees are:

- Bachelor of Science in Engineering Technology
- Bachelor of Science in Construction Management

The fall semester 2005 was started with almost every faculty member, both fulltime and adjunct, writing a brief (Pre-test) examination to act as a baseline for assessment. The final (Post-test) examination was compared to the baseline. The intent was to bring every class into the process.

During the Fall 2005 semester the department continued to get syllabi written with educational objectives.

2. Assessment Activities and Results

Assessment Activities

During the 2005-2006 school year the Engineering Technology Department identified four new objectives. They were:

a. Individual instructor designed assessment instruments. The intent was to develop and administer a pre-test and a post-test. Professor Jerry Cuper teaches TME1023, Engineering Graphics. He administered an evaluation questionnaire to his students. The class had six students. There were four questions on the questionnaire and five students received no credit and one student received one credit. The post-test was administered during the final examination where all four questions were part of the examination. The final assessment had responses that were broken into 20 questions. The instructor found four students who had a full 20 points. One student earned 19 points and the sixth student earned 16 points. Professor Cuper examined the questions for any commonality. There were no common errors by students.

b. Additional individual instructor designed assessment instruments. Professor John Wisniewski developed an instrument that was presented to students the first night of class. Mr. Wisneiwski assessed five different content areas. He had eight students in his class. The pre-test was scored like a test, in that there

were five topic areas and each area counted as 20 percentage points. Out of a possible 100 points the average score was 40%, with nobody attaining a score of 100% and one person achieving no credit. The post-test showed an average of 75%, and five students attaining 100%. There were no questions that showed commonality in the post-test. Professor Wisniewski eliminated no questions that appeared to be poorly written.

c. Additional individual instructor designed assessment instruments. Dr. William White assessed students in two TIE2063, Manufacturing Processes classes. There were four questions on the pre-test. There was an average of 1.52 on the pre-test. There were three that scored 0. There were ten that scored 1. There were three that scored 2. Three scored 3 and one scored 4. The post-test was spread out over three examinations, where the first examination assessed one question, the second examination assessed two questions, and the third assessed one question. The resultant scores on the post-test were 4 out of 4. The pre-test averaged 1.52 while the post-test was 4.
d. Additional individual instructor designed assessment instruments. Professor Ken Cook TIE4115, Senior Projects. He developed an instrument that was used to identify knowledge of topic areas. The questions were further subdivided each topic area into sub-topics. Questions were to be answered simply as "yes" or "no". The total of 19.9% had appropriate ("yes") responses. The post-test showed for nearly 100% of "yes" responses. His course involves selecting and design a product. A prototype product, a patent search, a business plan, and measures of financial success further follow this. To succeed in this class, all areas must be applied.
e. It was the intent of the department leadership to have all faculty perform a pre-test and post-test on their students. This was a noble goal but it was not successful. We received responses from about 1/3 of the group. It is probably more realistic to progress year-by-year to improve assessment in the classroom.
f. The Department is starting to develop course portfolios for various courses that are offered. Portfolios with include:
    - Course Syllabi
    - Copies of examinations
    - Homework assignments

Portfolios are to contain examples of student work that is rated as excellent, average, and poor.

Assessment objectives for the 2005-2006 school year have been directed at measuring writing content skills and examining leadership skills. Writing, as well as oral skills were examined in the following classes.

- TIE2063 Manufacturing Processes 1
- TIE2153 Manufacturing Processes 2

Dr. White continues to require that all students in TIE2063, Manufacturing Processes 1 and TIE2153, Manufacturing Processes 2, participate in the group presentations. Both group writing and group presentations are difficult to assess because the finished work may not accurately represent the work that was undertaken by each of the team members.

A peer evaluation instrument has been developed that requires that all team members to evaluate themselves as well as their team colleagues. The peer evaluation now includes questions that are used to help identify leaders. It is common to have one person who is identified as being capable of direction and control. There is seldom more than one leader but there can be groups that have no leader, or a minimal leader.

3. Action Plan for 2006-2007

a. Approximately 1/3 of the adjunct faculty will perform assessment within their classroom.
b. All faculty members, both full-time and part-time, will present their course goals using assessment-based descriptors.
c. New part-time faculty members are being asked to write intended outcomes for the instructional objectives they developed last year. These will follow the format presented in How to Write and Use Instructional Objectives, by Norman Gronlund. Support for the writing of these objectives will be from the secretary in the Engineering Technology Department.
d. A copy of Classroom Assessment Techniques: A Handbook for College Teachers, by Angel and Cross will be available to all adjunct faculty who would like to use it.
e. Heaviest of the action activities will be the implementation of Pre and Post Test questions for baseline assessment and measurement of progress.

The use of Pre and Post testing was challenging in its first year of operation, but once implemented, it gave each instructor a better chance to measure success. The second group will be added for the upcoming year.

College of Engineering

Department of Mechanical Engineering

Mechanical Engineering Department
Objectives and Outcomes Assessment
Summary 2005-2006

1. Program Education Objectives, Outcomes and Accreditation Status

The Mechanical Engineering (ME) Department was granted NGR (next general review in 6 years) status in August 2005 by the Accreditation Board for Engineering and Technology (ABET), using ABET 2000 criteria, which were established in 1998 to set forth new measures to assess engineering programs. Throughout the 2005-2006 academic year, the ME Department continued the assessment measures outlined in the Self Study of June 2004 and the December 2004 30 Day Response. The details of the actual assessment instruments are included as attachments to the 30 Day Response.

The ME Department also participated in all the assessment activities outlined by the University assessment Committee.

The current and published education objectives for the mechanical engineering program at Lawrence Technological University are to:

1. Produce graduates capable of applying fundamental science, math, and engineering principles, in conjunction with modern technology, in an interdisciplinary engineering work environment.
2. Produce graduates who are competent to pursue advanced degrees in engineering.
3. Produce graduates capable of working in global technical locations as well as in the automotive related industries of southeast Michigan.
4. Produce graduates capable of working in teams while utilizing ethical judgment and strong communication and leadership skills.
5. Produce graduates capable of understanding contemporary global engineering issues and recognizing the importance of lifelong learning.
6. Provide equivalent day and evening engineering degree programs for both full-time and part-time or working students.

The graduates of the program in mechanical engineering at Lawrence Technological University have:

a. An ability to apply knowledge of math, engineering and science.
b. An ability to design and conduct experiments as well as analyze and interpret data.
c. An entry level ability to design a mechanical component and system to meet predetermined design requirements.
d. An ability to function on a cross disciplinary team.
e. An ability to identify, formulate, and solve mechanical engineering problems.

f. An understanding of professional and ethical responsibility of mechanical engineers.
g. An ability to produce effective oral and written communications.
h. A broad education necessary to understand the impact of engineering solutions in a global and societal context.
i. A recognition of need and ability to engage in life-long learning.
j. A knowledge of contemporary issues.
k. An ability to use the modern techniques, skills, and tools of mechanical engineering.

2. Assessment Activities and Assessment Results

Results from Assessment Plan for the Fall 2005 and Spring 2006 semesters are given below for each outcome.

Outcome a. An ability to apply knowledge of mathematics, science, and engineering.

A team of faculty members developed an "FE-type question supplement" with several multiple choice answers, which was administered with the final exams in Engineering Numerical Methods, Kinematics,, and Dynamics. These questions involve the use of calculus and differential equations to solve engineering problems. Target: 70 % of students answering each multiple part question will achieve a score of 60 % or above.

For the Fall 2005 semester, results are as follows:

Engineering Numerical Methods	74 % of students received a score of 60 % or above
Kinematics	86 % of students received a score of 60 % or above
Dynamics	82.5 % of students received a score of 60 % or above

For the Spring 2006 semester, results are as follows:

Engineering Numerical Methods	84 % of students received a score of 60 % or above
Kinematics	88 % of students received a score of 60 % or above
Dynamics	76 % of students received a score of 60 % or above

Outcome b. An ability to design and conduct experiments, as well as analyze and interpret data.

Since the Thermal Science Lab is our capstone laboratory course, a team of faculty members created five supplemental questions for the existing final exam, in order to determine the students' ability to design and conduct experiments, as well as analyze and

interpret data. Target: 70 % of students will achieve a score of 60 % or above on five supplemental final exam questions that gauge students' ability to design experiments in Thermal Science Lab.

Results are as follows:

Spring 2006 semester:

95.7 % of students received a score of 60 % or above

Outcome c. An entry level ability to design a mechanical component and/or system to meet predetermined design requirements.

A team of faculty members developed two additional assessment metrics for our three semester design sequence. First, the team decided to invite both faculty members and members of the Advisory Board to the senior project presentations, including Formula SAE and Mini-Baja. The faculty members are required to answer a short list of questions to determine whether the project has met the design objectives. Project groups will be assessed using this method during the 3rd course in the senior project sequence. Targets are as follows:

Projects 2 (3rd course)	*70 % of groups will achieve a score of 87 % or above*

Results are as follows:

Fall 2005 semester:

Projects 2	80 % of the groups received a score of 87 % or above

Spring 2006 semester:

Projects 2	80 % of the groups received a score of 87 % or above

In addition, the design faculty team developed a ten question true/false quiz on design technique, to be administered to students in the ME design courses a the end of each semester. Since the students are progressing through the curriculum, different targets were set for these four courses:

Intro to Engineering	*70 % of students will achieve a score of 50 % or above*
Intro to Projects	*70 % of students will achieve a score of 70 % or above*
Projects 1	*70 % of students will achieve a score of 80 % or above*
Projects 2	*70 % of students will achieve a score of 90 % or above*

Results are as follows:

Fall 2005 semester:

Intro to Engineering	100 % of students received a score of 50 % or above
Intro to Projects	100 % of students received a score of 70 % or above
Projects 1	91 % of students received a score of 80 % or above

Spring 2006 semester:

Projects 2	78 % of students received a score of 90 % or above

Outcome d. An ability to function on a cross disciplinary team.

A team of ME faculty revised and expanded the use of the existing peer evaluation form used in the senior projects sequence, which was shown in the self study of July 2004. The form is also used to assess teamwork in the team design project assigned in Intro to Engineering. These forms were distributed to the instructors for the courses which require team projects. As the students progress through the curriculum, different targets were set for the courses involving team projects, since their teamwork skills should be improving. Targets are as follows:

Intro to Engineering	70 % of students will achieve a score of 68 % or above
Projects 1	70 % of students will achieve a score of 78 % or above
Projects 2	70 % of students will achieve a score of 89 % or above

Results are as follows:

Fall 2005 semester:

Intro to Engineering	84 % of students received a score of 68 % or above

Spring 2006 semester:

Intro to Engineering	100 % of students received a score of 68 % or above
Projects 1	93 % of students received a score of 78 % or above
Projects 2	62.7 % of students received a score of 89 % or above

Outcome e. An ability to identify, formulate, and solve mechanical engineering problems.

The ME Department decided to include a problem on the first page of the final exams in Statics, Mechanics of Materials, Design of Machine Elements, Thermodynamics, Fluid Mechanics and Heat Transfer. These problems were developed by relevant faculty. The problems are included in the final exam score as graded by each individual instructor, but are also team graded at the end of the semester to a standard involving the use of the problem solving rubrics shown in the self study of July 2004. In each course, a target of 50 % of students achieving a score of 70 % or above will be used.

Results from the assessment of these problems are as follows:

Fall 2005 semester:

Statics	65 % of students received a score of 70 % or above
Mechanics of Materials	76 % of students received a score of 70 % or above
Design of Machine Elements	53 % of students received a score of 70 % or above
Thermodynamics	31 % of students received a score of 70 % or above
Fluid Mechanics	76 % of students received a score of 70 % or above
Heat Transfer	98 % of students received a score of 70 % or above

Spring 2006 semester:

Statics	78 % of students received a score of 70 % or above
Mechanics of Materials	76 % of students received a score of 70 % or above
Design of Machine Elements	54 % of students received a score of 70 % or above
Thermodynamics	41 % of students received a score of 70 % or above
Fluid Mechanics	95 % of students received a score of 70 % or above
Heat Transfer	95 % of students received a score of 70 % or above

Outcome f. An understanding of the professional and ethical responsibility of mechanical engineers.

A faculty team has written a series of 10 true-false questions based on the NSPE Code of Ethics for Engineers. This short quiz was administered to the students after handing out the NSPE Code of Ethics. Targets for the courses are as follows:

Intro to Engineering	*70 % of students will achieve a score of 70 % or above*
Intro to Projects	*70 % of students will achieve a score of 80 % or above*
Projects 2	*70 % of students will achieve a score of 90 % or above*

Results are as follows:

Fall 2005 semester:

Intro to Engineering	95 % of students received a score of 70 % or above
Intro to Projects	100 % of students received a score of 80 % or above
Projects 2	83 % of students received a score of 90 % or above

Spring 2006 semester:

Projects 2	84 % of students received a score of 90 % or above

In addition, a team of faculty members has written a series of 10 multiple choice ethics questions. These questions were also used to project a discussion of ethics. Targets for the courses were as follows:

Intro to Engineering *50 % of students will achieve a score of 50 % or above*
Projects 2 *70 % of students will achieve a score of 70 % or above*

Results are as follows:

Fall 2005 semester:

Intro to Engineering 82 % of students received a score of 50 % or above

Spring 2006 semester:

Projects 2 78 % of students received a score of 70 % or above

Outcome g. An ability to produce effective oral and written communications.

A faculty team modified the evaluation forms suggested by the University's Oral Communications Team (chaired by Professor Kelch of the Technical Communications Department) for use with the individual oral presentations that are required in Thermal science Lab. Target: 60 % of students will achieve a score of 67 % or above.

Results are as follows:

Spring 2006 semester:

100 % of students received a score of 67 % or above

Assessment of written communication will be carried out as per the University-wide plan outlined in the self study of July 2004. Based on the results from the pilots, the following targets have been set for the students' first attempt to pass the essay:

65 % of students will pass the exam in their first attempt in Fall 2005
70 % of students will pass the exam in their first attempt in Fall 2006
75 % of students will pass the exam in their first attempt in Fall 2007
80 % of students will pass the exam in their first attempt in Fall 2008

Results are as follows:

Fall 2005 semester:

79.3 % of mechanical engineering students passed the exam in their first attempt

Spring 2006 semester:

78.9 % of mechanical engineering students passed the exam in their first attempt

Outcome i. A recognition of the need for, and an ability to engage in life-long learning.

Assistant ME Chair, Dr. Lisiecki, has added targets for the data presented in the self study of July 2004 for the recognition of our students of the need and ability to engage in life-long learning, and will monitor the results each year. As discussed in the self study, the next alumni survey will include a question on short courses and seminars.

Target for ME alumni subsequently enrolled in graduate school at LTU (as determined from data from the Registrar's office)	*15 %*
Target for alumni survey respondents indicating that they have enrolled in a graduate degree program (any institution)	*30 %*
Target for alumni survey respondents indicating participation in a short course, workshop or seminar in the past 2 years	*80 %*

In the June 2004 self study, data from the Registrar's offices showed that the percentage of LTU graduates who subsequently enrolled in graduate degree programs at LTU from 1985 to 2004 has been steadily increasing, up to a maximum of 21 % in 2002. Also, results from an alumni survey conducted in late 2003 were presented. Forty-one percent of the respondents to this survey had obtained or were in the process of obtaining a graduate degree. These results will continue to be monitored by the Assistant ME Chair.

3. Action Plan for 2006-2007

Results from the Revised Plan, which was implemented in the Fall 2004 semester, will be evaluated during the Fall 2006 semester. Modifications to targets, assessment measures and rubrics will be made. With these modifications, the ME Department will continue to follow the assessment practices outlined in the July 2004 Self Study. In addition, the ME Department will continue working with the University Assessment Committee on "Teamwork" and "Leadership".

College of Management

Lawrence Technological University
College of Management
Objectives and Outcomes of Assessment Summary
2005-2006

1. Program Educational Objective, Strategies and Accreditation Status

College of Management Objective: Align COM resources, programs, and strategies around the needs of our constituents—students, faculty, staff, alumni, and industry.
Strategies: Develop distinctive academic programs and provide enhanced student services.

Accreditation:
Lawrence Technological University is accredited by The Higher Learning Commission and a member of the North Central Association. The College of Management also has two business accreditations: The International Assembly of Collegiate Business Education (IACBE), and the Association of Collegiate Business Schools and Programs (ACBSP).

A. Assessment Tools for 2005-2006

- Graduate Survey
- Culture Survey
- MBA Pre/Post Knowledge Tests
- BSIT ICCP Exam
- CIMBA Pre – Post Tests and Reflection Papers (Exam)
- Bachelor of Management – Strategic Mgt Assessment (New Instrument)
- MBA Strategic Mgt Assessment (New Instrument)
- MSOM Capstone Assessment (TBD)
- DBA Course Evaluations and Student Focus Groups

B. Assessment Results for 2005-2006

1. Graduate Survey

The analysis of the Graduate Survey show overall high satisfaction with their learning experience at LTU's College of Management. The results of the survey follow.

VII. GRADUATE SURVEY 2006

Program Content:

Q1. How well your program met stated objectives?	No. of Responses	Percentage
Superior	19	45.24%
High Satisfactory	12	28.57%
Satisfactory	10	23.81%
Low Satisfactory	1	2.38%
Unsatisfactory	0	0.00%
No Answer	0	0.00%
Total	42	100%

Q2. How well your program met your needs and interests?	No. of Responses	Percentage
Superior	18	42.86%
High Satisfactory	15	35.71%
Satisfactory	7	16.67%
Low Satisfactory	2	4.76%
Unsatisfactory	0	0.00%
No Answer	0	0.00%
Total	42	100%

Q3. The helpfulness of your program to your work?	No. of Responses	Percentage
Superior	13	30.95%
High Satisfactory	20	47.62%
Satisfactory	7	16.67%
Low Satisfactory	2	4.76%
Unsatisfactory	0	0.00%
No Answer	0	0.00%
Total	42	100%

Q4. The knowledge and skills gained in your program?	No. of Responses	Percentage
Superior	17	40.48%
High Satisfactory	18	42.86%
Satisfactory	7	16.67%
Low Satisfactory	0	0.00%
Unsatisfactory	0	0.00%
No Answer	0	0.00%
Total	42	100%

Q5. The materials / books used?	No. of Responses	Percentage
Superior	8	19.05%
High Satisfactory	21	50.00%
Satisfactory	11	26.19%
Low Satisfactory	1	2.38%
Unsatisfactory	1	2.38%
No Answer	0	0.00%
Total	42	100%

Q6. The content of the courses taken?	No. of Responses	Percentage
Superior	11	26.19%
High Satisfactory	23	54.76%
Satisfactory	7	16.67%
Low Satisfactory	1	2.38%
Unsatisfactory	0	0.00%
No Answer	0	0.00%
Total	42	100%

Instructional Effectiveness:

Q7. Faculty's knowledge in their field?	No. of Responses	Percentage
Superior	23	54.76%
High Satisfactory	14	33.33%
Satisfactory	5	11.90%
Low Satisfactory	0	0.00%
Unsatisfactory	0	0.00%
No Answer	0	0.00%
Total	42	100%

Q8. Faculty preparation and organization?	No. of Responses	Percentage
Superior	13	30.95%
High Satisfactory	22	52.38%
Satisfactory	6	14.29%
Low Satisfactory	1	2.38%
Unsatisfactory	0	0.00%
No Answer	0	0.00%
Total	42	100%

Q9. Faculty responsiveness and timely feedback?	No. of Responses	Percentage
Superior	19	45.24%
High Satisfactory	18	42.86%
Satisfactory	5	11.90%
Low Satisfactory	0	0.00%
Unsatisfactory	0	0.00%
No Answer	0	0.00%
Total	42	100%

Q10. Faculty interest in teaching?	No. of Responses	Percentage
Superior	20	47.62%
High Satisfactory	17	40.48%
Satisfactory	4	9.52%
Low Satisfactory	1	2.38%
Unsatisfactory	0	0.00%
No Answer	0	0.00%
Total	42	100%

Q11. Faculty's clarity in presenting concepts?	No. of Responses	Percentage
Superior	17	40.48%
High Satisfactory	16	38.10%
Satisfactory	7	16.67%
Low Satisfactory	2	4.76%
Unsatisfactory	0	0.00%
No Answer	0	0.00%
Total	42	100%

Q12. Faculty's effect on student motivation?	No. of Responses	Percentage
Superior	16	38.10%
High Satisfactory	15	35.71%
Satisfactory	10	23.81%
Low Satisfactory	1	2.38%
Unsatisfactory	0	0.00%
No Answer	0	0.00%
Total	42	100%

Q13. Overall quality of the instruction you received?	No. of Responses	Percentage
Superior	21	50.00%
High Satisfactory	10	23.81%
Satisfactory	11	26.19%
Low Satisfactory	0	0.00%
Unsatisfactory	0	0.00%
No Answer	0	0.00%
Total	42	100%

2. MBA Program

MBA Pre/Post Knowledge Tests Assessment for:

MIS 6013: Management Information Systems
HRM 6023: Human Resource Management
MGT 6013: Leadership and Management
MGT 6053: Perspectives in International Business
MGT 6063: Strategic Capstone
MKT6013: Strategic Marketing Management
ACC 6013 Accounting for Decision Making

Assessment Tools Used: Multiple Choice Tests of 30 to 50 questions were administered before and after each course.

Analysis of Results: In examining the data of the pre-post tests, there were moderate increases in average tests scores in comparison to last year. During the end of the academic year, it was decided to replace the existing pre-post method with a comprehensive capstone exam given as the final exam for the Strategic Management course. This method was also modified and piloted in the Spring term for the Bachelor of Management programs with impressive results.

Action Plans: Conduct a pilot of the Strategic Capstone exam for the MBA program in Fall 2006. Begin full implementation for the Bachelor of Management Programs with modifications based on the pilot for Summer 2006.

Undergraduate Capstone Strategic Management Assessment Test

You are interviewing for the position of Director of Strategic Business Planning at the Lawrence Manufacturing Corporation. Present are the Chief Executive Officer (CEO), the Chief Financial Officer (CFO), the Presidents of three of the six business units, and the Vice Presidents for Marketing, Economics, Engineering, Information Technology, and Government Relations.

Lawrence is a $20 billion dollar, multi-national corporation with production facilities in six countries and sales in over 50 countries around the globe. The company has six major business units: Home Appliances; Electrical Equipment; Industrial Tools; Agricultural Equipment; Automotive Parts; and an expanding Financial Services business that markets a broad range of commercial financing, insurance and credit services. Many of the business units purchase common parts and components from the same vendors; utilize similar technologies; and serve common customers.

The CEO explained that the company had never engaged in business planning. The business units operate "more or less on their own." She explained that this has worked well in the past but that the company has failed to meet its profit and market share goals in the last three years. She expressed confidence in her management team, explaining that the economies in several of their largest markets were depressed; new, onerous environmental regulations had increased their costs; and that they had been surprised when several domestic competitors introduced new, innovative products, and when a new foreign competitor had entered the market offering products at significantly lower prices. Nevertheless, she feels it is now necessary to introduce business planning at Lawrence to improve overall performance.

The CFO, in a hostile voice, quickly added that his staff always established challenging financial targets for the business units, and held them to strict capital spending limits and tight budgetary controls. In his view, this was sufficient. You took note of this.

The CEO then asked you to explain the basic concept of strategic business planning and how it would help improve performance at Lawrence since they had never engaged in any type of planning beyond basic financial forecasting. She specifically asks you what

her role would be in the planning process, what the corporate headquarters' responsibilities would be and how the corporation would add value to the business units. The three Presidents of the business units and the functional executives also wanted to know what their specific roles and responsibilities would be in this new planning process, and how their performance would be evaluated and rewarded.

The Vice President of Information Technology also wanted to know what types of external and internal information would be required to develop the business plans, and how they would obtain this information. He wanted to know what types of analytical tools, methodologies and skills they would need to generate and analyze this information.

One of the Presidents of the business units asks you to explain what a business plan consist of and how they will know if they have developed a good plan.

Finally, the CEO stated emphatically that she did not have the time to spare or the resources to devote to writing business plans that would only "gather dust on the shelves." She asks you how you would ensure that the plans were implemented effectively.

You take a deep breath – long enough to organize your response to the questions they raised:

- Basic concepts of strategic business planning
- Strategic planning at the Corporate level
- Roles of SBU managers and functional executives
- Analysis of external and internal environments
- An effective business plan
- Execution!
- Analytical tools and concepts (Accounting, Business Law, Finance, Organization Behavior, Microeconomics, Marketing, Macroeconomic, Leadership and Management)

You look right at the CFO with the confidence that comes from long hours of study, hard work and thorough preparation. You say to yourself: "This job is mine!"

Student Name _____ Professor _____

Undergraduate Capstone Strategic Planning Assessment Test

Strategic Planning Issues	Score
Basic Concepts of Strategic Business Planning (Understands basic planning concepts, methodologies and the planning process in a large, complex organization)	_____
Strategic Planning at the Corporate Level (Understands the role of the CEO, corporate-level responsibilities, portfolio management, cash flow analyses, and how the Corporation adds value.)	_____
Roles of SBU Managers and Functional Executives (Understands the roles of the SBU managers in writing and executing the business plans, and the roles of key functional executives in supporting planning at the Corporate and SBU levels.)	_____
Analysis of the External Environment and Assessment of Internal Strengths and Weaknesses **(**Understands the importance, scope, and techniques for analyzing the external environment, and for assessing internal capabilities.)	_____
The Business Plan (Understands strategic alternatives, sustainable competitive advantage, and the structure and criteria for effective business plans.)	_____
Executing the Business Plan (Understands the obstacles encountered in implementing business plans, leadership and management techniques for overcoming these obstacles; the need to maintain alignment among the strategy, structures, systems and culture; and the importance of monitoring and rewarding performance.)	_____
TOTAL SCORE	_____

Comments:

Scoring:

4.0-3.75: Student demonstrates a thorough knowledge of all the issues, their relationship to all aspects of the planning process, and their importance to the success of the planning effort. Student effectively utilizes a variety of tools and concepts from a number of different disciplines, and is able to address the issues in the specific context of the case.

3.25 – 3.0: Student demonstrates a thorough understanding of most of the issues, their importance and roles in the overall planning process. Student applies some concepts and tools from other disciplines, and addresses some issues in the specific context of the case.

2.75-2.0: Student demonstrates an adequate understanding of the majority of the issues and their importance and roles in the overall planning process. Student makes general references to some tools and concepts from other disciplines, and addresses issues with general reference to the case.

1.75-1.0: Student demonstrates a limited understanding of many of the issues, and no understanding of others. Student demonstrates an equally limited knowledge of the importance and roles of the various issues in the overall planning process. Student does not effectively utilize tools and concepts from other disciplines, or effectively assess issues in the context of the case.

<1.0: Student demonstrates a clear lack of understanding of the issues, and their importance and roles in the overall planning process. Student does not utilize any concepts or tools from other disciplines, and does not assess the issues in the context of the case.

MBA Capstone - Strategic Management Assessment Test

You are interviewing for the position of Director of Strategic Business Planning at the Lawrence Manufacturing Corporation. Present are the Chief Executive Officer (CEO), the Chief Financial Officer (CFO), the Presidents of 3 of the six business units, and the Vice Presidents for Marketing, Economics, Engineering and Government Relations.

Lawrence is a $20 billion dollar, multi-national corporation with production facilities in six countries and sales in over 50 countries around the globe. The company has six major business units: Home Appliances; Electrical Equipment; Industrial Tools;, Agricultural Equipment; Automotive Parts; and an expanding Financial Services business that markets a broad range of commercial financing, insurance and credit services.

The CEO explained that the company had never engaged in business planning. The business units operated "more or less on their own." She explained that this had worked well in the past but that the company has failed to meet its profit and market share goals in the last three years. She expressed confidence in her management team, explaining that the economies in several of their largest markets were depressed; new, onerous environmental regulations had increased their costs; and that they had been surprised when several new domestic and foreign rivals introduced new, innovative products at reduced prices in several of their business sectors. In response to these new threats, Lawrence launched a strategy of lowering prices while adding unique features to its products. Unfortunately, without much success to date. "We just seem to be stuck in the middle," she admitted, while wondering what other strategies they might pursue. She feels it is definitely necessary to introduce more systematic business planning at Lawrence to improve overall performance.

The CFO, in a hostile voice, quickly added that his staff always established challenging financial targets for the business units, and held them to strict capital spending limits and tight budgetary controls. In his view, this was sufficient. You took note of this.

The CEO then asked you to explain how you would organize a strategic business planning effort at Lawrence. She asked what types of information and analytical tools would be needed to support the planning effort. She asked you how you would ensure that the business plans were implemented effectively. She emphasized that she did not want to spend time and resources developing business plans that would simply "gather dust on the shelf." Finally, she wanted to know precisely what her role would be in the planning process, and how the Corporation would add value to the business units.

The three Presidents of the business units present also wanted to know what their specific roles and responsibilities would be in this planning process, and how their performance would be evaluated and rewarded. The Vice Presidents of Marketing, Economics, Engineering and Government Relations, and of course, the CFO wanted to know exactly what they would be expected to do as part of the proposed planning process.

The CEO suggested that since none of them had any real experience with business planning, that you might start with a brief overview of the basic concept. You nodded your head in agreement. Fortunately, you have taken good notes throughout the meeting.

They are waiting . . . .

MBA Strategic Management Assessment Test

The student should identify and respond to ten critical strategic planning issues that are raised during the job interview.

1. The first issue is the CEO's request for an overview of the basic planning process since she and the other executives at Lawrence have no prior experience with strategic business planning.

   Planning occurs at both the Corporate and the business unit levels, though it is quite different in nature at the two levels. Corporate planning is similar to portfolio management where the Corporation allocates its assets to its portfolio of business units so as to maximize overall corporate profitability.

   The Corporation launches the planning effort with a long-term vision of what Lawrence wants to achieve, including specific goals and strategies for achieving those goals.

   Each of the business units need to develop a clear mission that defines they business they are in; analyze the external economic and socio-political environments to identify potential business opportunities and threats to their business; assess its internal strengths and weaknesses; establish a balanced set of financial, operating, customer satisfaction and developmental goals; and the best strategies for achieving these goals given the external opportunities and threats and its particular strengths and weaknesses.

   Once plans are developed and approved, it is, of course, necessary to monitor performance, make necessary mid-course corrections for unanticipated changes in the environment, and finally to reward achievement of business plan- goals.

2. The CEO has expressed confidence in her management team though Lawrence has failed to meet it profit and market share goals for the past three years. She attributes these failure to meet company goals to depressed markets; new, costly environmental regulations; and to the unanticipated introduction of new products at lower prices by several domestic and foreign competitors. She does, however, concede that the company needs to engage in business planning going forward.

   The events that have caused Lawrence to miss its goals for the past three years identified by the CEO support her decision to implement a strategic business planning process at Lawrence. The analysis of both the external economic and socio-political environments in which Lawrence operates will help them anticipate and prepare for business cycles and depressed markets in its major markets, and for new environmental, safety, health and other social demands that might b made upon Lawrence in the future.

The identification and assessment of all significant domestic and foreign competitors is a major component of the analytical effort that supports any business planning activity. Peter Drucker writes that next to knowing what your customers want, the most important thing is to know what your competitors are doing. The planning process we would implement here at Lawrence would identify these competitors, determine what their goals are; what their capabilities are, and what strategic initiatives they are most likely to undertake so that Lawrence is not surprised by their competitors in the future.

3. The CEO also told you that they launched a strategy to reduce prices and add unique features to their products in response to the new and unanticipated competition. She allowed that it has not been effective, and that they seem to be "stuck in the middle."

   There is a Japanese expression that he who chases two hares catches neither. That may be your difficulty in attempting to both reduce prices and add unique features to your products. It is very difficult to pursue two different strategies such as these at the same time because each strategy requires different skills, resources, structures, systems, management styles and norms of behavior to implement successfully. As a result, firms often get "stuck in the middle" when they attempt to implement two different strategies. They wind up not implementing either one very effectively.

   I would venture that Lawrence would fare better pursuing a single business strategy. There are five basic business strategies a company can pursue, though there are an infinite number of variants on these basic or generic strategies.

   Lawrence will have to decide, based on its analysis of the external environment and assessment of its internal strengths and weaknesses, to pursue either a broad or niche differentiation strategy or a broad or niche low-cost strategy. There is one additional strategy – the best value strategy. It sounds as though Lawrence may have been trying to implement a best-value strategy by lowering its prices while adding new features to its products. This, however, is an extremely difficult strategy to implement because the company must have the ability to provide additional product features and quality at significantly lower cost than its rivals.

4. The CFO has made it clear that in his view the establishment of financial targets and imposition of tight capital spending and budgetary controls is all the planning that is required at Lawrence.

   Establishing financial goals and maintaining strict capital spending and budgetary controls are certainly essential to any business planning effort. The benefits of business planning are that it helps identify what those goals should be, and, most importantly, creates strategies for achieving those goals. Business planning will help the Corporation allocate its available capital more efficiently among the

various business units, and help hold the business units accountable for earning a return on that capital. It will also provide greater flexibility for modifying capital expenditures and budgets in light of new business opportunities and changing external conditions. Business planning also provides an opportunity to develop a set of integrated financial and non-financial goals that will promote the company's continued profitability over the longer term.

5. The CEO wants to know how you would organize a business planning activity within Lawrence.

   It sounds as though Lawrence is doing fundamental budget and forecast-based planning, but it needs to move on to the next phase of business planning – strategic planning and ultimately to strategic management. I would move to the strategic planning phase gradually because there is a lot of organizational learning required to implement a strategic planning successfully. I would not create a large, centralized planning bureaucracy. A small central office planning staff reporting to the CEO, however, will be needed to administer the planning process, but the fundamental business planning must be done by those who are ultimately responsible for carrying out the plans and achieving the results.

   The central office planning staff, working with the CEO, CFO and others will develop and issue the business planning instructions, the format for the plans, the information required from the business units, and any necessary guidelines for budgets and capital spending. The planning staff can also provide common economic and financial data that all of the operating units will need. Since Lawrence has no prior experience with business planning, it will also be necessary for the planning staff to provide some necessary training in planning for executives throughout the company who will be involved in the process. The planning staff can also function as an effective sounding board for the business units.

   The planning staff will develop a time line for developing the plans at the business units, and for reviewing them with the Corporation. The planning staff will also assist the Corporation in consolidating the strategic aspects of the various plans, identifying strategic interdependencies and assessing the Corporation's overall strategic position just as the Finance Staff consolidates the revenue and cost forecasts for the Corporation.

6. The CEO also wants to know what types of information will be required to develop the business plans, and what types of tools would be used to analyze the data.

   As Sun Tzu emphasized in his classic The Art of War three thousand years ago, knowledge of the external environment and of one's "enemies" is essential to "victory." The analysis of the opportunities and threats in the external environment and objective assessment of the company's internal strengths and

weaknesses provide the foundation for the development of effective business plans. The plans must be aligned with market conditions to succeed.

The company will need information on the economies in the countries where it is operating, the structure and competitive conditions of industries in which it competes, key characteristics (incomes, preferences, etc.) of its customer base, changing technologies, government policies that affect Lawrence, and the likely strategic initiatives of its major competitors in each market.

There are a few relatively simple business planning tools that we could effectively utilize in our planning process. One might be the General Electric matrix that assesses the attractiveness of an industry and our competitive position in that industry. This matrix can be used in a lot of ways to improve the planning process. The Michael Porter Five Forces of Competition Model is another useful tool for assessing the long-term profit opportunities in different industries.

7. The CEO wants to be ensured that the plans will be implemented effectively. She does not want to waste resources developing plans that will sit on the shelves.

   I agree with you totally. Unfortunately, this happens all too often. Studies show that 70 percent of the time when business strategies fail it is the result of poor execution rather than a flawed plan.

   Firstly, it is absolutely essential that we monitor business plan performance on a continuing basis, and that the business units be rewarded for achieving the goals stated in the business plan and not for reasons or factors unrelated to the business plan. People know that what counts get counted!

   Effective implementation of the business plan, however, requires more than alignment between the goals of the plan and the incentive system. Indeed, the basic requirement for effective plan implementation is a good "strategic fit" among the plan itself, and the company's organizational structure, business systems, human-relationship systems for motivating, empowering and rewarding members of the organization for pursuing the new vision, and a good strategic fit with the organization's social architecture or culture.

   To ensure the plan is executed effectively at Lawrence, it may well be necessary to alter the structure, some of the business and human-relations systems in place and the company's basic values and norms of behavior. Changing the latter often proves the most daunting challenge.

8. The CEO also wants to know what her specific role is in the strategic business planning process, and how the "Corporation" will add value to the business plans developed by the business units.

The CEO, as the leader of the organization, has a critical role to play in the strategic business planning process. It is the CEO's primary responsibility to develop the long-term vision for the company; to articulate that vision clearly to all members of the organization; and to motivate everyone in the organization to pursue that vision. The CEO is the primary "change agent." She must overcome natural human resistance to change, and convince the members of her organization that the changes she is proposing will benefit everyone in the organization.

Implementing strategic change is the major test of leadership. One should never underestimate the amount of resistance to change that will be encountered. The CEO must overcome complacency with the status quo, create a powerful coalition for change and eliminate obstacles to change throughout the organization.

The CEO also must also articulate the basic values and beliefs and norms of behavior that are expected and that are necessary to achieve the vision. All members of the organization need to know what is expected of them and how they are to conduct themselves in dealings with customers, suppliers, fellow employees and the public.

The "Corporation" adds a significant amount of direct (overhead) and indirect (slowed decision-making) costs to the business units. It therefore must add sufficient value to justify these extra costs. If it cannot do that, the business units would be more profitable as independent businesses.

The Corporation adds value to the business units fundamentally by acting as a superior internal financial market, and by exploiting strategic interdependencies among the business units that might exist on either the demand or supply side. The Corporation must allocate resources to the operating divisions to maximize overall corporate profitability.

The Corporation may be able to allocate resources among its business units more efficiently than external capital markets because of superior information that is not available to external markets. It may also be able to reduce costs or increase revenues by capturing a variety of production, distribution, marketing or purchasing synergies among the business units that might exist when some of the products are substitutes or complements, when some products use common parts and components or common technologies, or when they utilize common distribution channels. The business planning process and the consolidation of the business plans by the planning staff will bring these synergies to the surface.

9. The business units leaders also want to know what their specific roles and responsibilities will be in this new planning process, and, predictably, how their individual performance will be evaluated and rewarded.

The leaders of the business units have the most important roles in the planning process. Firstly, they must define the unit's mission – clearly articulate what business they are in. The mission statement should clarify who their customers are, what customer needs they are meeting and how they are going to meet these needs better than competitors. Such a mission will ensure that everyone in the unit is on the same page. They are also responsible for analyzing the environments in which they compete, and for both developing and executing the plans for earning superior returns in those environments.

The leaders of the business units and their teams are rewarded for achieving the goals committed to in their business plans. It is sometimes difficult to determine the precise causes of success or failure in meeting the goals of the plan because of unforeseen changes in the external environment, events beyond the leaders' control and because of interdependencies within the organization. Nevertheless, the leaders of the business units, fundamentally, must be rewarded for achieving the goals of the business plans.

10. The Staff Vice Presidents for Marketing, Economics, Government Relations and Engineering are equally concerned about what they will be expected to do in the new planning process.

    Each of the staff Vice Presidents has a major role to plan in the development and execution of the business plans at Lawrence. The staffs exist to help the business units and the Corporation achieves their goals. The staffs possess data, information, knowledge and expertise that the business units need to develop effective business plans.

    The staffs can assist the business units in analyzing the external environment – economic conditions (disposable incomes, inflation, interest rates, energy prices, and exchange rates), customers (demands, profiles and demographics), government regulations (environmental, health, safety, trade policy and social expectations), industries (industry drivers, key success factors, structural conditions and long-term profit potential), competitors (product quality, service and cost), and cost, and technology (short-and long-term developments in technology).

    The staffs can also assist in developing new organizational structures and business systems that might be needed to implement the business plans effectively.

    Finally, the CFO, visibly hostile to any new planning process at Lawrence, wants to know what role he will play in the new process.

    The CFO plays an absolutely essential role in the business planning process that goes far beyond capital and expense budgeting. The CFO needs to ensure that the company's resources are allocated to the business units in accordance with approved business plans. A failure to do so ensures plan failure.

The CFO should ensure that there is a strategy in place to achieve every financial goal in the business plans. The CFO is responsible for monitoring performance to plan, and for recommending course corrections when necessary.

Perhaps, most importantly, the CFO is responsible for ensuring that the business units in total are generating sufficient cash flow to meet the company's ongoing needs, and to fund promising new businesses. The CFO must take a lead role in securing the financing for any strategic expansion, diversification or merger initiatives.

Business planning will not likely succeed without an effective integration of financial and strategic planning. Both are much more productive when they are components of a comprehensive planning process.

3. BSIT Program

Statistics and Frequencies

Since 2002-2003, 14 students have taken the ICCP examination. Of the 14 students, 5 are female and 9 are male.

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	9	64.3	64.3	64.3
	Female	5	35.7	35.7	100.0
	Total	14	100.0	100.0	

13 of the 14 students passed the exam, 8 (57.1%) receiving ACP Certification and 5 (35.7%) received the CCP Certification. Only 1 student failed to earn one of the certifications. 92.9% of students taking the examination received one of the certifications.

Certification

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	ACP	8	57.1	57.1	57.1
	CCP	5	35.7	35.7	92.9
	Failed	1	7.1	7.1	100.0
	Total	14	100.0	100.0	

The data in this set cover examination results from 2002-2003, 2004-2005, and 2005-2006.

Academic Year

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	02-03	1	7.1	7.1	7.1
	04-05	10	71.4	71.4	78.6
	05-06	3	21.4	21.4	100.0
	Total	14	100.0	100.0	

Students' results by academic year:

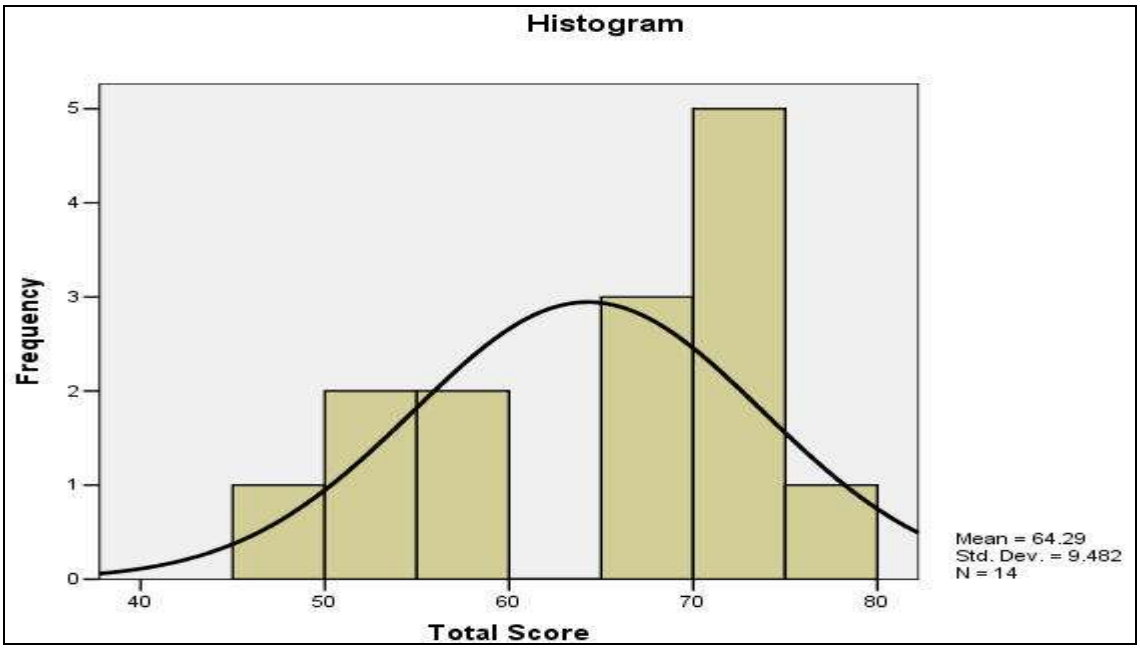
Table 1 - Raw Data

	Gender	CERT	Score	Year
1	2	1	54	02-03
2	2	3	47	04-05
3	2	1	53	04-05
4	1	1	72	04-05
5	1	2	72	04-05
6	1	2	72	04-05
7	2	1	65	04-05
8	1	2	71	04-05
9	2	1	56	04-05
10	1	2	78	04-05
11	1	1	66	04-05
12	1	1	55	05-06
13	1	1	67	05-06
14	1	2	72	05-06

The total scores show the distribution which indicates the vast majority of students are achieving the desired of results of the program. The histogram graph illustrates this further.

Total Score

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	47	1	7.1	7.1	7.1
	53	1	7.1	7.1	14.3
	54	1	7.1	7.1	21.4
	55	1	7.1	7.1	28.6
	56	1	7.1	7.1	35.7
	65	1	7.1	7.1	42.9
	66	1	7.1	7.1	50.0
	67	1	7.1	7.1	57.1
	71	1	7.1	7.1	64.3
	72	4	28.6	28.6	92.9
	78	1	7.1	7.1	100.0
	Total	14	100.0	100.0	



Summary

Over the three academic years of data 92.9% of our students complete the examination with a passing score earning them one or more of the ICCP certifications.

Year	Passed	Failed	% Passed	% Failed
2002-2003	1	0	100	0
2004-2005	9	1	90	10
2005-2006	3	0	100	0

As more data from past years are made available and as some students take the examination last minute for the 2005-2006 academic year the data will be updated and reevaluated. The B.S. Information Technology program continues to evaluate and refine our instruction to ensure students receive the knowledge and skills that will help them upon graduation. The program will be working tightly with the undergraduate management programs to strengthen the student outcomes in the management and human and organizational framework areas of the ICCP examination. This interdisciplinary approach will create stronger candidates for future employment. Through the results of the ICCP examination, as well as other measures, our goal of continuous evaluation and improvement of the program will result in greater focus in each subject area.

Course Evaluations (Mid-Term and End-of-Course Evaluations)

These two instruments are used to help fine tune the instruction for each subject area, identify opportunities for further training, mentorship and coaching, and synchronize the learning objectives to avoid excessive overlap of subject material from course to course within the program.

Additionally, instructors share generalized data from mid-term and final exams with colleagues to identify areas through out the program needing improvement. An example would be a student in a database course is expected to have a basic knowledge of databases prior; therefore, an introduction to databases would be essential in the IT Inaugural course or an Introduction to Databases course with specific objectives to set the student up for success in the later database course.

When combined with the ICCP examination results as well as the information from the Noel-Levitz Survey the picture of student needs becomes clearer, identifying new opportunities for program development and improvement.

4. CIMBA Program

Means of Assessment: Pre/Post Tests for CIMBA Modules and Reflection Papers.

Below are the changes and improvements submitted by Professor Majewski, Director of the CIMBA Program.

- Module 1 - updated text materials to new editions of the Financial Analysis book (Higgins).

- Module 2 – formally added Glenn Yeager as instructor to the module to assist Debra Williams and Regina Greenwood with the computer simulation mechanics. In the past he did this work unofficially and out of the goodness of his heart. We finally righted that wrong.

- Module 3 – The Business Management module suffered last year therefore I met with Janis McFaul and Mike Rinkus in the Spring of 2006. We selected new textbooks for the course, arranged for new guest speakers, more integration of assignments, and a new grading system. The class just began meeting two weeks ago with positive feedback so far. For next year we are already looking into implementing a simulation for the module.

- Module 4 – Luke VanDogen and John Shevlin completely re-wrote this module last summer. They launched it in Fall 2006 with significant success. A pre-post test case analysis was part of the rework. Student evaluations were the best yet since the creation of the CIMBA program.

- Module 5 – Jackie Stavros and Ben Benson did a 50% rework of Module 5 in the Spring of 2005. New books were used, new assignments, and a whole new approach was taken. Based on the feedback from Jackie I think the improvements were successful. She did submit pre and post test scores to you so you do have some concrete data to show the student learning.

- Module 6 – Upon taking CIMBA back over I decided that Module 6 needed major rework. I hired Lee Lahr and Glenn Yeager to take over teaching the module and restructured it as a “fill in the missing links” module. Since there were many student learning deficiencies noted in previous modules (based on instructor and student feedback) this module is now focused on assessing student knowledge in foundational MBA concepts and using the lecture time to go over the gaps identified in the assessments. A series of about 10 mini case studies are being administered each weekend (Friday evenings),

while Saturday is used to lecture. The students are still assigned an application project in this module, but only Dr. Lahr and Prof. Yeager are serving as advisors. This allows us to make sure there is more consistency in the rigor and application of each project.

- Selection process – I have reinstituted the three-phase application process for CIMBA Program 8 and am currently filling spots for the Fall 2006 program. I just admitted the first candidate tonight!!

5. DBA Program

DBA 8013 Focus Group Results:

1. **Maintain Required Texts**
   Rationale: Students felt the existing required texts were excellent for this course.

2. **Guest Speakers**: Utilize two versus three guest speakers during the term.
   Rationale: Three speakers demanded too much time and class sessions were rushed. Use guest speakers in the second and third weekend only. Ensure speakers are value-added and that they specifically focus their sessions on leadership experiences.

3. **Leadership Interviews:** Allow students the flexibility to interview leaders outside of their organization. A previous criterion was limited to within their organization.
   Rationale: Some students selected top leaders of Fortune 50 companies. These interviews provided great insight into leadership development.

4. **360 Evaluation:** Move deadline up one week for completion of project. Too much is due at the end of the term.
   Rationale: More time is needed to work on and complete the capstone essay project: Leadership Paper. This improvement allowed students more time to focus on their final paper and to create their presentations for the class.

5. **What Do We Need in a Leader?** Provide more detailed instructions of the requirements for this essay. **Rationale:** Students were confused about the expectations of this project. Provide examples of prior student's work to illustrate expectations. This year, previous student examples were used and proved helpful to students.

6. **APA Guidelines:** Use the prepared handout on APA guidelines to fully discuss this style of writing the first night of class. **Rationale:** Most students were not aware of this style of writing that is required at the doctoral level. The Library's website also offers online tutoring for APA style which many students utilized.

7. **Bass Presentations:** Shorten the length of these presentations to 1.5 hours to ensure professor involvement and class discussion of major learnings. **Rationale:**

Ensure consistency in knowledge and application of principles. This was helpful but students still required more time. Students were also given the option to update the Bass Book (published in 1990) by offering research current to the topics in the chapters. This provided a valuable contrast into the latest leadership developments.

General Comments: Overall the students found the class to be a very positive learning experience and highly valuable in their professional careers. They felt it was an excellent introduction to the DBA program as evidenced in their mid and end-of-the-term evaluations.

DBA 8073 Focus Group Results:

1) A student focus group was conducted the last weekend of class (December 2005) to discuss in detail the general learnings of the class and how to make improvements for the next cohort. An extensive evaluation was posted on Blackboard and completed prior to the focus group (see attached) so students would come prepared as to the content of the session. Students also completed term end evaluations.

2) **Syllabus designed with learning options:** The syllabus offered students the opportunity to choose individual and/or team deliverables based on their areas of interest that connected with the learning objectives of the course. It was the student's responsibility to stay organized and on a timeline that he or she suggested within the course syllabus guidelines for the first weekend. This was a very rewarding and unique "teaching and learning" methodology – keep it! **Rationale:** This is a risk for the student and the instructor; however, the students appreciated the options and took full advantage to enhance the learning experience. This gives the student the opportunity to explore his/her areas of interest and integrate the assignments when possible. The instructor also stressed the importance of teamwork and the team approach. This has proven to be important and enhanced the sense of partnership and camaraderie among the cohort!

3) Evaluation on Guest Speakers:

   - Keep **DBA ABD Panel** with a focus on the content of the course so we are leveraging our learnings! **Rationale:** The selected candidates were very helpful and help us to understand the next year's path we must take.

   - **Build in events** that connect to the course objectives and work to further the professional and personal growth of students. This term students had the opportunity to prepare for a conference or journal submission that aligns with the OD Course in lieu of another assignment if one is available especially if Bb is used to keep the group connected. **Outcome:** Several students had conference proceedings accepted and one student (our first DBA student) had a paper accepted to the Academy of Management 2006 Conference.

   - **Cheri Torres, President, Mobile Team Challenge – Excellent –** bring it into your MBA programs because it encourages a more collaborative versus a competitive environment! **Rationale:** We liked the physical "real time" experience of teamwork, innovation, creativity, and trust in action when leading change with the integration of learning and apply Appreciative Inquiry in real time strategic change. She tied the experiential learning to learning objectives from both **Dr. Castelli's** and **Dr. Stavros'** coursework. Direct tie into several research agendas and work.

- **Dr. Jane Seiling** – She prepared a two-hour workshop in collaboration w/Dr. Stavros called "Pathways to Publishing". **Rationale:** This was to help students understanding the various pieces and venues for publishing before, during and after one's dissertation.

Overall Comments: Keep the guest speakers. The ABD panel was excellent. Speakers were very well versed in their areas and how their work connected to our learning objectives.

6. Realized Outcomes for 2005-2006

Major actions and realized outcomes for 2005-2006 include:

- Redesigned and refined courses within the CIMBA program to better meet the needs of the students.

- Introduction to a new assessment method for the MBA and Bachelor of Management Programs – Strategic Management Capstone Exam. This method better reflects the College's emphasis on practical leadership skills application.

- Quantified BSIT and the Graduate Survey assessment results are used as a benchmark for next academic year.

- Continued high satisfaction with the value of learning experience, faculty, and COM overall effectiveness.

7. Action Plans for 2006-2007

- MBA and Bachelor of Management Programs – Full implementation of Strategic Management Capstone Exam.

- BSIT – Continue to exceed last year's actual results.

- MSOM – Use a skills application process for assessing the overall results of student learning similar to the MBA program.

- DBA – Continue to report findings for individual courses and incorporate changes and improvements for future courses. Development and execution of the Comprehensive Exams and the Dissertation Proposal Course.

- Implement the Strategic Plan as communicated by the Dean per schedule (see attachment for Strategic Plan).

- Improve the effectiveness of COM operations by continuing to incorporate findings from the Culture Survey into a variety of existing procedures aimed at improving satisfaction levels with faculty and staff within the College (see attachment).

Refer to the COM Annual Report on Outcomes Assessment Appendix for individual action plans by course/program/operations.

Respectfully Submitted by:

Patty Castelli
College of Management, Outcomes Assessment Coordinator
May 2006

Name: Betsy Jenaway Title: Regional Direct – BSIT Off-Campus Program Area: BSIT, MBA, MSIS & MSOM

Annual Review of Goals and Outcomes for Academic Year 2004-2005

Institutional Mission: To develop leaders through innovative and agile programs embracing theory and practice.

Unit Mission: To improve the quality of organizational life tomorrow by developing strategic managers and visionary leaders today.

Unit Objectives/Strategies: 1) Provide our students with convenient learning centers, enhanced personal services, innovative programs, and alternate modes of instruction. 2) Provide our faculty, administrators, and staff with growth and development opportunities. 3) Provide our alumni, donors, and industry neighbors with networking and training opportunities.

Unit Objective *(State if Program Outcome [PO] / Student Learning Outcome [SLO] / Effectiveness Measure [EM])*	**Desired Outcome/Result** *(Cite Measurable Criteria for Success)*	**Means of Assessment** *(Evaluation Tool)*	**Actual Outcome/Result** *(Cite Data Findings)*	**Use of Results** *(Strategies to Improve or Continue Success)*
Ensure our students are satisfied with course offerings, quality of instruction and overall collegiate experience Noel-Levitz Student Satisfaction	• 80% of students are satisfied with course content, delivery and overall collegiate experience at Macomb's University Center.	Noel-Levitz Student Satisfaction Survey These are the results from the surveys conducted in 2004. We recently surveyed the	For overall satisfaction with college experience, Macomb students scored 5.05/sd=1.02 where the National Group scored 4.47/sd=1.33. This produced a mean difference of .58. With regards to overall satisfaction with their experience at LTU, the Macomb students scored	Scores for Instructional Effectiveness, Academic Advising, Student Centeredness, Concern for the Individual and Service Excellence were all above the National Group Means.

Unit Objective *(State if Program Outcome [PO] / Student Learning Outcome [SLO] / Effectiveness Measure [EM])*	**Desired Outcome/Result** *(Cite Measurable Criteria for Success)*	**Means of Assessment** *(Evaluation Tool)*	**Actual Outcome/Result** *(Cite Data Findings)*	**Use of Results** *(Strategies to Improve or Continue Success)*
Survey [SLO]		students and expect our scores to remain the same or higher.	6.05/sd=.80 where the National Group scored 5.15/sd=1.49. This produced a mean difference of .90. Both results exceeded the 80% expectation. (See attached Noel-Levitz report for complete results)	
Ensure our students are satisfied with course offering and the quality of instruction. Effectiveness Measure [EM]	• 75% of students rate the course content as appropriate and relevant • 75% of the students will rate the instructor as effective	Mid-Course Evaluations	Instructors and Macomb Operations Manager both review the evaluations. There is no quantifiable data generated from the evaluations	Regional Direct – BSIT Off-Campus Program first reviews the evaluations to make sure that the course is proceeding as expected by the students. When expectations have not been met, the Regional Director reviews the evaluations with the instructor to determine what can be done to meet expectations. In certain circumstances the evaluations are reviewed by the Assistant Dean for her input. If the evaluations show that expectations are being met, no follow-up meeting with the instructor is scheduled unless the instructor

Unit Objective *(State if Program Outcome [PO] / Student Learning Outcome [SLO] / Effectiveness Measure [EM])*	**Desired Outcome/Result** *(Cite Measurable Criteria for Success)*	**Means of Assessment** *(Evaluation Tool)*	**Actual Outcome/Result** *(Cite Data Findings)*	**Use of Results** *(Strategies to Improve or Continue Success)*
				wishes a meeting. For new instructors ,regardless of the outcome of the evaluation, a follow-up meeting is scheduled to review progress in the course.
Effectiveness Measure [EM]	• 75% of students rate the course content as appropriate and relevant • 75% of the students will rate the instructor as effective	End-of-Course Evaluations	Instructors and Regional Direct – BSIT Off-Campus Program review the results. There is no quantifiable data generated from the evaluations. Instructors generalize the results for discussion purposes.. No quantifiable data is available.	Regional Direct – BSIT Off-Campus Program first reviews the evaluations and then provides them to the Assistant Dean. After final grades are posted these evaluations are distributed to the instructor. If the evaluations show areas of improvement a follow-up meeting is scheduled with the instructor to review the results and brainstorm about opportunities for improvement the next time the course is offered. On rare occasions, when an instructor's end of term evaluations are extremely bad, the instructor is not asked back to teach. This is decision is reviewed with the Assistant Dean prior to implementation. Student comments, suggestions and complaints as they relate to curricular issues

Unit Objective *(State if Program Outcome [PO] / Student Learning Outcome [SLO] / Effectiveness Measure [EM])*	**Desired Outcome/Result** *(Cite Measurable Criteria for Success)*	**Means of Assessment** *(Evaluation Tool)*	**Actual Outcome/Result** *(Cite Data Findings)*	**Use of Results** *(Strategies to Improve or Continue Success)*
				are communicated to the appropriate program director at the Main Campus.

Name: Robert Inskeep Title: Executive Director, College of Management Area: Administration

Annual Review of COM Cultural Goals and Outcomes for Academic Year 2005-2006

LTU Institutional Mission: To develop leaders through innovative and agile programs embracing theory and practice.

COM Unit Mission: To improve the quality of organizational life tomorrow by developing strategic managers and visionary leaders today.

Unit Objectives/Strategies: To use the culture survey findings to identify and better understand (1) the cultural assumptions that form the basis of decision making within the College of Management, (2). areas in which we excel and upon which we can further build and (3) opportunities to improve our support and service to our faculty, staff and students.

Unit Objective *(State if Program Outcome [PO] / Student Learning Outcome [SLO] / Effectiveness Measure [EM])*	**Desired Outcome/Result** *(Cite Measurable Criteria for Success)*	**Means of Assessment** *(Evaluation Tool)*	**Actual Outcome/Result** *(Cite Data Findings)*	**Use of Results** *(Strategies to Improve or Continue Success)*
The COM Mission and objectives are clear to all, with management actions well aligned with those objectives and direction helpful to adjuncts.	• 80% of respondents will know the COM mission • 80% or more of faculty and staff will agree they know their work objectives • 80% or more of respondents will agree that management actions	2005 COM Adjunct Culture Survey	• 88% of the ***Note 2** adjunct respondents agreed they knew the COM's mission • 85% of the respondents agreed they knew their work objectives • 81% of the respondents agreed management's	***Note 3** Upon analysis of the survey results, the dean and his senior management team assembled to review and discuss next steps as relates to building upon survey results. It was agreed that: • Survey respondents generally agreed that the mission and direction of the COM was clear and well aligned wit overall COM objectives. • COM leadership will continue to work to clarify the College's mission an,

Unit Objective *(State if Program Outcome [PO] / Student Learning Outcome [SLO] / Effectiveness Measure [EM])*	**Desired Outcome/Result** *(Cite Measurable Criteria for Success)*	**Means of Assessment** *(Evaluation Tool)*	**Actual Outcome/Result** *(Cite Data Findings)*	**Use of Results** *(Strategies to Improve or Continue Success)*
Effectiveness Measure [EM]	are well aligned with COM's objectives. • 80% of respondents will agree there are well planned goals for their courses 80% or more of respondents agree that COM provides helpful direction to adjuncts.	2005 COM Adjunct Culture Survey	actions were well aligned with COM objectives • 64% agreed there were well planned goals for the courses 71% agreed that COM leadership adhered to work priorities for COM	vision and strategic initiatives, and strive to create greater cooperation and unity among all faculty thru special meetings, mini-retreats, in-service training sessions and social gatherings. • Work continues to provide periodic electronic surveys and special topic inquires among adjuncts to determine needs and special concerns, on which the COM can provide assistance.