

Lawrence Technological University

Assessment Report

2008-2009 Academic Year

University Assessment Committee



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## **Executive Summary of 2008-2009 Assessment Report**

Assessment of student educational outcomes at Lawrence Technological University is the responsibility of the University Assessment Committee (UAC). The function of the UAC is to advise the Director of Assessment, to plan and carry out assessment of student learning in the academic programs of the University, and to disseminate results of assessment activities to the University and the general public. Committee membership typically accounts for the equivalent of three academic hours of service to the University.

The UAC is chaired by the Director of Assessment (who is a faculty member appointed by the Provost), one member from each academic department, and the Provost (*ex officio*), the Associate Provost and the Coordinator of Institutional Research and Assessment (as non-voting members).

The UAC meets regularly during the academic year (usually 90-minute bi-weekly meetings) to discuss assessment methodology best practices in each program. These meeting help to ensure the vitality of assessment within individual programs. The UAC meets for annual semester planning retreats. The UAC meets with all the University full time faculty, department chairs, program directors and College Deans during the annual University Assessment Day.

All UAC meeting minutes and associated assessment materials are stored on the university learning management system.

This report contains the 2008 Assessment Day presentations (which close-the-loop on the previous year assessment activities), and annual reports from programs for the 2008-2009 academic year (which describe assessment activities for the academic year and assessment plans for the next academic year).

## **Assessment Committee Membership Rules** (Adopted, May 7, 2007)

### **Membership Composition**

The Assessment Committee includes a representative from each academic department at LTU, a chairman that is the Director of Assessment for the University, and two *ex officio* members: the Provost and the Coordinator of Institutional Research.

Proposed:

The Assessment Committee is made up of the following individuals:

- The Director of Assessment (Chairperson)
- The Provost, *ex officio* and non-voting
- The Coordinator of Institutional Research, *ex officio* and non-voting
- One representative from each academic department
- One representative from any other academic unit as the Provost may direct

Comment: The revision is intended to be read more easily, to emphasize the central roles on the Committee, and to limit the membership (the previous wording says who is included but does not exclude any number of others being added) while allowing the Provost to decide about units such as LTU Online and the Undergraduate Management Programs in Arts and Sciences (but not to select their representatives directly).

### **Chairperson**

The Chairperson of the Assessment Committee is the University's Director of Assessment. He/she is a faculty member appointed by the Provost.

### **Committee Members**

- (1) Each department, and each other program designated by the Provost, names its own representative.
- (2) Each department or unit representative serves for a term of three years. In the event of a vacancy during a term, the department or unit will name a representative to serve the unexpired part of the regular term.
- (3) Continuous membership as a department or unit representative is limited to two regular terms plus up to two semesters' service in an unexpired term before the first regular term. A member who becomes ineligible because of this limit remains ineligible for three years unless the Provost decides that the department or unit lacks sufficient faculty for a normal rotation.
- (4) Renewed terms start in August of each year.
- (5) Members will serve 3 years in staggered terms.
- (6) Each member will attend an NCA conference, or another conference on academic assessment approved by the Director and the Provost, during his or her first year of service.

### **Rules of Order**

- (1) A two-thirds majority vote of the voting members of the Assessment Committee is required to change any of the membership rules once this proposal is approved.
- (2) Robert's Rules of Order will be followed in other details that may not have been mentioned in the membership rules.

## UAC Membership 2008-2009 Academic Year

### Chair and Director of Assessment

Walter Dean

### College of Architecture and Design

*Architecture*

*Art and Design*

Dan Faoro

Thomas Regenbogen

### College of Arts and Sciences

*Humanities, Social Sciences, and Communication*

*Mathematics and Computer Science*

*Natural Sciences*

Jason Barrett

Jonathon Brewster

Nicole Villeneuve

### College of Engineering

*Civil Engineering*

*Electrical and Computer Engineering*

*Engineering Technology*

*Mechanical Engineering*

John Tocco

Rakan Chabaan

William White

Christopher Riedel

### College of Management

*DBA, DMIT, MBA, MSIS, MSOM, BSIT*

Diane Cairns

### Ex-Officio Members

*Associate Provost*

*Coordinator, Institutional Research and Assessment*

Stephen Howell

Mary Thomas

## University Undergraduate Educational Goals (September 2007)

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 region's preeminent private university producing leaders with an entrepreneurial spirit and global view, by 2015.

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

Lawrence Tech's values are:

- Theory and Practice
- Agility and Teamwork
- Integrity and Trust

Lawrence Tech's cause is the intellectual development and transformation of its students into critical thinkers, leaders, and lifelong learners.

The educational goals for the University's undergraduate curricula emphasize five areas:

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

\*\*\*\*\*

### ***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 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.



### 2008-2009 Undergraduate Assessment Plan

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	Update plan 2008 – 2009
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	Update plan 2008 - 2009
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 Writing Proficiency Exam Observation of oral presentations	Humanities Department	1st yr/ 2nd yr	Ongoing
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 Multi-disciplinary committee HSSC	3rd yr  3rd / 4th yr 3rd / 4th yr	Pull sample in focus years Every 5 yr, from sp03 Develop plan 2009 - 2010; implement Fall 2010
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	HSSC	3rd / 4th yr	Develop plan 2009 – 2010 ; Implement Fall 2010
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 and NS	2nd yr	Develop plan 2009 - 2010; Implement Fall 2010
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	ACT-CAAP Test	UAC	Fr & Sr	Surveyed in 2007; Again in 2011.

Group III. Leadership	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.	Leadership Survey, Focus Groups, & Portfolios	Leadership Program & LCIC	All	Phased in 2009 – 2012
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.	Leadership Survey, Focus Groups, & Portfolios	Leadership Program & LCIC	All	Phased in 2009 – 2012
III. 3. Graduates will have had experiences that promote the ability to analyze unfamiliar situations, assess risk, and formulate plans of action.	Leadership Survey	Leadership Program & LCIC	All	Phased in 2009 – 2012
III. 4. Graduates will be aware of the importance of lifelong learning in their profession.	Leadership Survey	Leadership Program & LCIC	All	Phased in 2009 – 2012
III. 5. Graduates will have had experiences that promote civic responsibility and a global and societal perspective of contemporary professional life.	Leadership Survey, Focus Groups, & Portfolios	Leadership Program & LCIC	All	Phased in 2009 – 2012

<b>Group IV. Teamwork</b>	<b>Assessment Strategy:</b>	<b>Responsible Academic Unit</b>	<b>Level</b>	<b>Timeline</b>
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.	Teamwork survey Develop a plan of action based on baseline assessment of teamwork	UAC	All	Spring 2010 Fall 2011
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.	<i>Same as for IV. 1.</i>	<i>Same as for IV. 1.</i>	<i>All</i>	<i>Same as for IV. 1.</i>
IV. 3. Graduates will have had team experiences in which they practice making decisions, reaching consensus, and resolving conflicts.	<i>Same as for IV. 1.</i>	<i>Same as for IV. 1.</i>	<i>All</i>	<i>Same as for IV. 1.</i>
<b>Group V. Character Education</b>	<b>Assessment Strategy:</b>	<b>Responsible Academic Unit</b>	<b>Level</b>	<b>Timeline</b>
V. 1. Graduates will have had opportunities to learn the value of contributing to their community and to society	Leadership Survey and Focus Groups	<b>(Part of Leadership Program proposal)</b>  Leadership Program  University Assessment Committee	All	<b>(Part of Leadership Program Assessment)</b>
V. 2. Graduates will have had opportunities to develop personal values as the foundation of integrity and professional ethics	Character Education Survey	Leadership Program  UAC	All	????

**Assessment Day 2008**  
**Friday, September 19, 2008**  
**Lear Auditorium – T429**  
**AGENDA**

<b>Continental Breakfast</b>	8:30 – 9:00
<b>Welcome</b> <i>Dr. Lewis Walker, President</i>	9:00 – 9:15
<b>Introduction</b> <i>Dr. Maria Vaz, Provost</i> <i>Dr. Walter Dean, Director of Assessment</i>	9:15 – 9:30
<b>Program</b> <b>Assessment of Graduate Programs</b> <i>Dr. Steven Howell</i> <i>Dr. Elin Jensen, Civil Engineering</i> <i>Dr. Valentina Tobos, MSE, MET</i>	9:30 – 9:50
<b>Leadership Program</b> <i>Dr. Andy Gerhart</i>	9:50 – 10:00
<b>Character Education</b> <i>Dr. Don Carpenter</i> <i>Dr. Steve Howell</i>	10:00 – 10:15
<b>Break</b>	10:15 – 10:30
<b>Writing Assessment Results</b> <i>Dr. Walter Dean</i> <i>Dr. Chris Riedel</i>	10:30 - 12:30
<b>Closing comments – Writing Assessment</b> <i>Dr. Maria Vaz</i>	
<b>Lunch - UTLC Gallery</b>	12:30 – 1:30
<b>Departmental Breakout Sessions</b> <i>Room location and agenda to be communicated by</i> <i>University Assessment Committee departmental representatives</i>	1:30 – 3:00
<b>Adjournment</b>	

Assessment Day 2008  
Agenda for Afternoon Breakout Sessions

- I. Today you have heard a number of recommendations for improving student writing at Lawrence Tech, especially in upper-level courses. The University Assessment Committee would like to have your feedback on several of these, especially concerning help and resources that the University might provide. Please discuss and respond to these recommendations; some starting points for discussion are suggested:
  - College-specific “banned error list”: Would you use such a list as a basis for evaluating writing in your courses, if it existed?
  - Raising standards for writing: Would you be willing to enforce appropriate writing standards by making them an important part of the grading system in your courses?
  - Quantity of writing in upper level courses: Our recent NSSE survey results indicate that LTU senior level students in general write less than students from our peer institutions. What recommendations can you make to improve not only the quality, but quantity of writing that our students do in upper level courses?
  - College Writing Coaches: Would you find such a resource useful? Would your students?
  - WPE and upper-level courses: How is the WPE related to writing in upper-level courses? Might it help to make the WPE a prerequisite for senior-level major courses (not Jr-Sr Humanities Electives) with significant writing components? Which ones?
  - Comments, suggestions, any other ideas for a plan for improving writing in upper-level courses?
- II. The Assessment Committee sees a need for a better consensus on what issues we should be pursuing in the area of Character Education. To help us with this, please discuss and fill out the “Character Education Quality Standards” survey (if you have not already done so). For each question, please provide two responses: one indicating how well we are doing, and one indicating how important you think it is that we be doing well (i. e. “Noel-Levitz style”).
- III. The balance of your time can be spent on assessment matters of Departmental concern. Your University Assessment Committee representative will provide this part of the agenda.

(Assessment Committee representatives: Please compile and summarize results and bring to the next Assessment Committee meeting, 9/24/08.)

## Writing Assessment: Closing the Loop

Benjamin Benson  
Barry Knister  
Gretchen Rudy  
Chris Riedel

## INTRODUCTION

- Initial Writing Assessment project was conducted in 2003
- Objective was to assess writing skills of LTU students in upper level courses
- The 2008 writing assessment project is to conduct the same assessment of student writing that was done in 2003 and compare the results (loop closing)

## METHODOLOGY

- Samples were collected from junior- and senior-level courses across all colleges
- 56 randomly selected anonymous papers were read by the committee

College/Department	Number of Papers
Architecture & Design	8
Arts & Science	22
Business	6
Engineering	20

## EVALUATION AND GRADING

Evaluated both content and writing

### Writing Errors

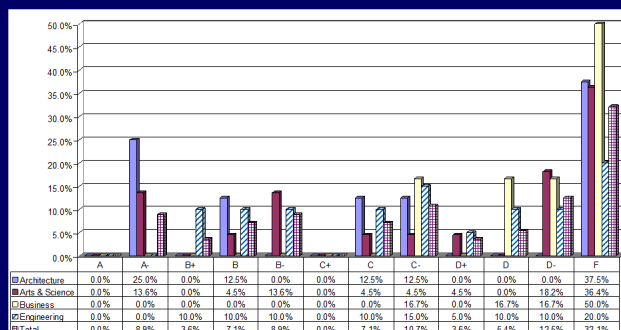
**Major** – Humanities Banned Error List

**Minor** – all other errors

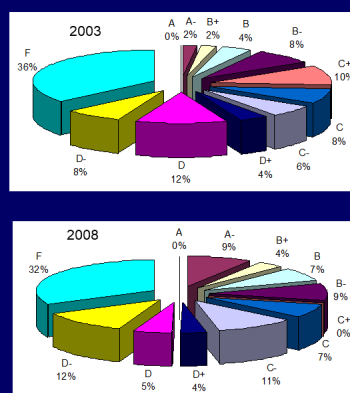
### Grading

- Every 3 major errors reduced paper grade by one-half letter grade
- Every 5 minor errors reduced grade by one-half letter grade

## GRADES BY COLLEGES



## ALL GRADES



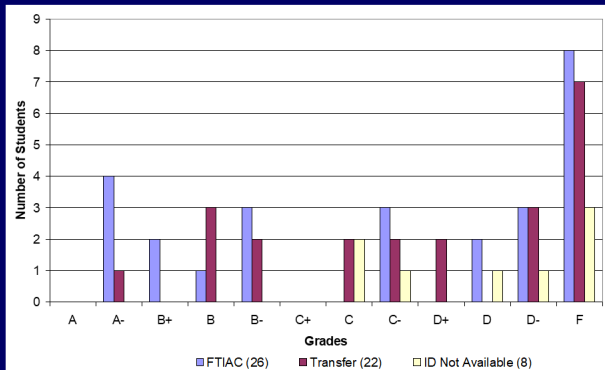
### AVERAGE ERRORS PER PAPER

	Average Number of Errors		Percentage	
	Major	Minor	Major	Minor
Architecture	6	12	33%	67%
Arts & Science	4	16	20%	80%
Business	8	9	47%	53%
Engineering	3	13	19%	81%

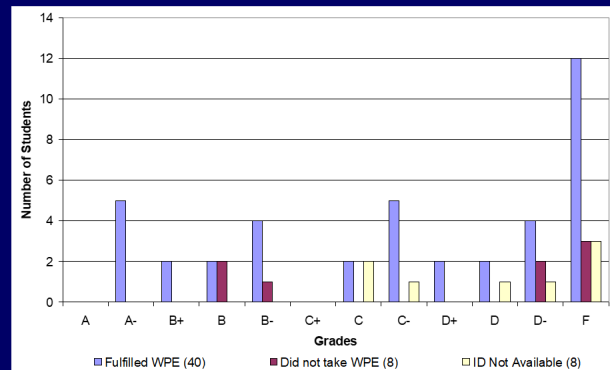
### AVERAGE ERRORS PER PAPER

	2003		2008	
	Major	Minor	Major	Minor
Architecture	8%	92%	33%	67%
Arts & Science	20%	80%	20%	80%
Business	25%	75%	47%	53%
Engineering	13%	87%	19%	81%

### ENTRY STATUS



### FULFILLMENT OF WPE



### OBSERVATIONS AND CONCLUSIONS

- Disproportionate percentage of samples received a grade of F
- Most samples had a significant number of minor errors
- Papers at a B or C level for content often received final grades of D's or F because of large major and minor error count

### OBSERVATIONS AND CONCLUSIONS

- FTIACs may have done slightly better than transfer students but data here is not as conclusive as it was in 2003
- Correlation between WPE results and writing assessment data is very difficult
- Overall, there has been little or no improvement in student writing

## RECOMMENDATIONS

### 1. Banned Error List in Each College

- Each college will develop a Banned Error list as well as grading criteria for student writing
- Writing style and content varies greatly among colleges
- Create “local ownership” for the evaluation (not teaching) of writing

## RECOMMENDATIONS

### 3. Safe Assignment

- Encourage faculty to use Safe Assignment in the evaluation of their students' writing
- Addresses the issue of plagiarism
- May have a positive impact on promoting the importance of writing to students

## NATIONAL SURVEY OF STUDENT ENGAGEMENT (NSSE) RESULTS

		LTU Mean	
Class		2002	2008
<b>1. Academic and Intellectual Experiences</b>			
Worked on a paper or project that required integrating ideas or information from various sources	FY	2.83	3.17
	SR	2.98	3.08
Number of written papers or reports of 20 pages or more	FY	1.10	1.37
	SR	1.48	1.40
Number of written papers or reports between 5 and 19 pages	FY	1.98	2.09
	SR	2.09	2.02
Number of written papers or reports of fewer than 5 pages	FY	2.77	3.10
	SR	2.53	2.56
<b>11. Educational and Personal Growth</b>			
Writing clearly and effectively	FY	2.40	2.97
	SR	2.63	2.71

## RECOMMENDATIONS

### 2. Writing Coach in Each College

- Well-qualified faculty member from each college implement recommendation 1 and assist faculty with their writing assignments
- Will act as an intermediary/liaison for the faculty, students, and AAC
- Goal is to support faculty and get better utilization of the AAC

## NATIONAL SURVEY OF STUDENT ENGAGEMENT (NSSE) RESULTS

Focus is on quantity, not quality

		LTU			Geographic Peers			Carnegie Class			NSSE 2008		
Class		Mean	Mean	Sig.	Mean	Mean	Sig.	Mean	Mean	Sig.	Mean	Mean	Sig.
In your experience at your institution during the current school year, about how often have you done each of the following? 1=Never, 2=Sometimes, 3=Often, 4=Very often													
<b>1. Academic and Intellectual Experiences</b>													
Worked on a paper or project that required integrating ideas or information from various sources	FY	3.17	3.15	.03	3.08	3.12	***	3.06	3.12	***	3.06	3.14	***
	SR	3.08	3.39	***	3.32	3.32	***	3.30	3.30	***	3.30	3.30	***
Number of written papers or reports of 20 pages or more	FY	1.37	1.26	.16	1.27	1.27	***	1.28	1.27	***	1.28	1.27	***
	SR	1.40	1.69	***	1.63	1.63	***	1.64	1.64	***	1.64	1.64	***
Number of written papers or reports between 5 and 19 pages	FY	2.09	2.48	***	2.24	2.24	***	2.29	2.29	***	2.29	2.29	***
	SR	2.02	2.80	***	2.57	2.57	***	2.58	2.58	***	2.58	2.58	***
Number of written papers or reports of fewer than 5 pages	FY	3.10	3.34	***	3.00	3.00	***	3.04	3.04	***	3.04	3.04	***
	SR	2.56	3.25	***	2.98	2.98	***	3.00	3.00	***	3.00	3.00	***
<b>11. Educational and Personal Growth</b>													
To what extent has your experience at this institution contributed to your knowledge, skills, and personal development in the following areas? 1=Very little, 2=Some, 3=Quite a bit, 4=Very much													
Writing clearly and effectively	FY	2.97	3.10	.15	3.02	3.02	***	3.02	3.02	***	3.02	3.02	***
	SR	2.71	3.21	***	3.11	3.11	***	3.11	3.11	***	3.11	3.11	***

Sig: \* =  $p < 0.05$ , \*\* =  $p < 0.01$ , \*\*\* =  $p < 0.001$

Effect Size: 0.2  $\Rightarrow$  small, 0.5  $\Rightarrow$  moderate, 0.8  $\Rightarrow$  large

## NATIONAL SURVEY OF STUDENT ENGAGEMENT (NSSE) RESULTS

- Freshman level results show significant improvement since 2002 while Senior level results show little improvement
- Freshman level results are much closer to our peers as compared to Senior level results
- Senior level results are significantly lower than our peers



### Assessment of Student Writing

Assessment of student writing continued to be a significant concern, even though this was not the major focus of assessment this year. Following the Assessment Day presentation on the 2007-08 writing assessment, three steps were taken:

- Provost Maria Vaz asked the Academic Deans to develop plans for improving student writing in their Colleges
- College of Arts and Sciences Dean Moore, Department of Humanities, Social Sciences, and Communications Chair Melinda Weinstein, and HSSC Assessment Committee representative Jason Barrett were asked to comprehensively review the Writing Proficiency exam and how it is being used to assess the outcomes desired for the first two years
- The Department of Humanities, Social Sciences, and Communications was asked to work with WPE Director Joyce Munro to develop and improved rubric and possibly standardized scoring procedures for the WPE

The very extensive WPE review, including proposals for improvements of the rubric and scoring, is presented as part of the HSSC report later in this document.

### Assessment of Oral Presentation Skills

Oral presentation skills are included among the goals under “Fundamental Cognitive Skills and Abilities”:

*II. 4. Graduates will be skilled in written and oral communication.*

Assessment of oral presentation skills had originally been scheduled for the 2007-08 academic year, but had to be postponed following the death of Dr. Kevin Kelch, who had been heading the effort. Unfortunately, it proved impossible to find a member of the HSSC faculty willing to take over as his replacement, so the effort had to be undertaken directly by the Assessment Committee.

In the fall semester, members of the Committee asked their faculty to record student presentations in their courses, using whatever resources they had available. The result was that essentially no presentations were submitted.

In the spring semester a different approach was taken. Committee member Diane Cairns enlisted the help of the Department of eLearning Services to record presentations, so that it was only necessary to identify the courses with presentations and schedule the recordings. This approach was not perfect; it was not always possible to schedule a student assistant at the times desired, and the quality of the recordings was somewhat uneven, but they were adequate for the purpose. Presentations were obtained from all Departments except the College of Management.

Four evaluators (one from each college) were chosen: Barry Knister (Arts and Sciences), Lisa Anneberg (Engineering), Janice Means (Architecture and Design), and Richard Bush (Management), the first two having been members of the 2003-04 team.

The 2008-09 assessment was scaled back somewhat from the previous (2003-04) assessment due to budgetary considerations, but we were able to have each member assess twenty presentations from fourth-year courses, with each presentation being evaluated by two evaluators. The presentations were randomly chosen to achieve roughly the same balance as the numbers of majors in each of the three colleges represented: ten from Engineering, seven from Architecture, and three from Arts and Sciences.

Another twenty presentations were randomly chosen from sections of COM2103 (Technical and Professional Communications).

From this point, the assessment process was designed to take advantage of the online capabilities provided by eLearning Services. The presentations were digitized and uploaded to Blackboard, so that they could be conveniently evaluated over the internet. A Blackboard was prepared, based on the 2003-04 rubric, to receive and record the evaluations. Each presentation was evaluated on 25 questions (4 point Likert scale plus N/A), and six yes/no “comments” (these were not on the 2003-04 rubric).

Since the evaluators were not working collaboratively, their evaluations were checked for “inter-evaluator effects” with these results:

Evaluator	2	3	4
1	0.70	0.52	1.07
2		1.13	0.96
3			1.33
Overall	1.01		

These differences were judged to be acceptable.

These results support these conclusions:

- For COM2103, the results are about the same to somewhat better than in 2003-04.
- For fourth-year courses, the results show improvement in the “Structure and Organization” category but slight reduction in the other areas.
- The “comment” questions show little difference between COM2103 and the fourth-year courses.
- Some formerly weak areas seem improved: Speech/Delivery in COM2103; Structure/Organization in fourth-year courses.
- Com2103 seems to be effective in improving performance in later courses.

- Overall, there is still room for improvement.

Some recommendations are offered for the next Oral Presentation assessment:

Assessment Recommendations:

- Assessment should be run by the Department of Humanities, Social Sciences, and Communications.
- Only “solo” presentations should be assessed – no group presentations.
- Some thought could be given to assessing specific questions:
  - Differences between students taking CO2103 at LTU and those transferring credit
  - Non-traditional vs. traditional students
  - How to handle ESL students and online students

Recommendations for the Faculty:

- Keep presentation skills honed by requiring presentations throughout the curriculum
- Make sure students know the standards that will be used to evaluate their presentations
- Maintain high standards for presentations
- Support Recommendations:
  - Reinforce skills learned in COM2103
  - Make faculty and students aware of standards
  - COM2113 (Speech) rubric (same standards as COM2103 but stated more generally)
  - Interpretive document to explain rubric terminology, etc. for faculty who are not communications professionals
  - Exemplary student presentations
  - Examples of poor presentations?
- Consider an “Oral Communications Booster” before capstone courses

## Use of NSSE Survey Questions for Assessment

The recent adoption by LTU of the National Survey of Student Engagement raises the question of whether any of the NSSE questions might be used for assessment purposes. A committee was set up to investigate this question, composed of:

Walter Dean, Director of Assessment  
 Jason Barrett, HSSC representative  
 John Tocco, CE representative  
 Ashraf Ragheb, Architecture representative  
 Mary Thomas, Director of Institutional Research

The report of this committee follows:

To: LTU Assessment Committee  
 From: NSSE Question Task Force  
 Date: 3/18/09

The NSSE Question Task Force was organized to consider the question of whether some questions on the National Survey of Student Engagement (NSSE) could be usefully incorporated into the LTU Assessment Plan for undergraduate programs. We have identified a number of questions that can be mapped onto the Educational Goals, and our recommendations are given in the table below.

- “Indicators” are presented for each question; these are somewhat arbitrary but in general are chosen to represent an improvement over present LTU scores, and where possible we have taken the particulars of the LTU curriculum into account. We also note that, because for most of the NSSE questions the “maximum” score is 4, it will be increasingly difficult to get higher scores as this limit is approached. Hence we have rarely suggested an indicator above 3.2 as a goal. Finally, we have made “first pass” suggestions of the Department or other unit that “owns” each question; the general principle being that for freshmen, many goals (especially Group II) are mainly associated with the College of Arts and Sciences, but that for seniors most goals are owned by the entire University.
- It will be seen that for many of the questions as they apply to first-year students, we are actually quite near the goal level, reflecting the effort that has been put into the first-year program in recent years. For students in the senior year, more needs to be done, but even here we are not far from the goal level in many cases. Also, there are some questions that are only to be answered for the student’s present year (rather than their whole experience) that may not be addressed by our curriculum in that particular year resulting in low scores for such questions.
- The number of LTU students taking the NSSE is relatively small, and the language used in many questions and answers seems highly susceptible to interpretation. For these reasons, we do not believe that the “resolution” of the scores on the NSSE questions is better than a few tenths – that is, they are probably subject to more or less random fluctuations from year to year of about that size. Hence, we recommend that these scores be considered as trend indicators, rather than as triggers for

specific action unless they fall perhaps 0.3 points below the goal level. Experience with gathering and interpreting these data will enable us to refine this criterion in the future.

- The purpose of using these questions as assessment tools is to assess our performance against our own goals, and we suggest them strictly with this purpose in mind. We see comparisons with other schools or groups of schools as having little relevance to this purpose, whatever value they have for other purposes.

Respectfully submitted,

NSSE Question Task Force

Walter Dean, Chair  
Ashraf Ragheb  
John Tocco  
Jason Barrett  
Mary Thomas

**Proposed Mapping: Educational Goals with NSSE Questions**

Goal	NSSE Question	Indicator	Dept.
I. 1. Graduates will demonstrate knowledge, and expertise in applying this knowledge, in their fields.	11. b. Acquiring job or work-related knowledge and skills.	Fr 3.0 Sr 3.2	All
I. 2. Graduates will demonstrate effective use of technology and the ability to apply it in their fields.	10. g. Using computers in academic work. 11. g. Using computing and information technology.	Fr 3.4 Sr 3.6 Fr 3.2 Sr 3.4	A&S All A&S All
II. 1. Graduates will be skilled in written and oral communication.	1. b. Made a class presentation.  1. c. Prepared two or more drafts of a paper or assignment before turning it in.  3. c. Number of written papers or reports of 20 pages or more.  3. d. Number of written papers or reports between 5 and 19 pages.  3. e. Number of written papers or reports of fewer than 5 pages.  11. c. Writing clearly and effectively.  11. d. Speaking clearly and effectively.	Fr 2.5 Sr 3.0  Fr 3.0 Sr 3.0  Jason checking w/HSSC      Fr 3.2 Sr 3.2 Fr 3.2 Sr 3.2	A&S All A&S All         A&S All A&S All

<p>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.</p>	<p>1. e. Included diverse perspectives (different races, religions, genders, political beliefs, etc.) in class discussions or writing assignments.</p> <p>1. u. Had serious conversations with students of a different race or ethnicity than your own.</p> <p>1. v. Had serious conversations with students who are very different from you in terms of their religious beliefs, political opinions, or personal values.</p> <p>11. a. Acquiring a broad general education.</p> <p>11. 1. Understanding people of other racial and ethnic backgrounds.</p>	<p>Fr 3.0 Sr 3.0</p> <p>Fr 3.0 Sr 2.5</p> <p>Fr 3.0 Sr 2.5</p> <p>Fr 3.2 Sr 3.2 Fr 3.0 Sr 3.0</p>	<p>HSSC All</p> <p>?</p> <p>?</p> <p>All A&amp;S</p> <p>?</p>
<p>II. 3. Graduates will be aware of the foundations and development of American society.</p>	<p>(None)</p>		
<p>II. 4. Graduates will demonstrate competence in mathematics and in the use of the scientific method and laboratory technique.</p>	<p>11. f. Analyzing quantitative problems.</p>	<p>Fr 3.2 Sr 3.2 (NB Arch. is non-quantitative)</p>	<p>All?</p>

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.	1. d. Worked on a paper or project that required integrating ideas or information from various sources.	Fr 3.2 Sr 3.2	All?
	2. b. Analyzing the basic elements of an idea, experience, or theory, such as examining a particular case or situation in depth and considering its components.	Fr 3.0 Sr 3.2	All?
	2. c. Synthesizing and organizing ideas, information, or experiences into new, more complex interpretations and relationships.	Fr 3.0 Sr 3.2	All?
	2. d. Making judgments about the value of information, arguments, or methods, such as examining how others gathered and interpreted data and assessing the soundness of their conclusions.	Fr 3.0 Sr 3.2	All?
	2. e. Applying theories or concepts to practical problems or in new situations.	Fr 3.0 Sr 3.2 (NB Fr<Sr because of structure of courses)	All?
	6. d. Examined the strengths and weaknesses of your own views on a topic or issue.	Fr 3.0 Sr 3.0	
	11. e. Thinking critically and analytically.	Fr 3.2	
	11. f. Analyzing quantitative problems.	Sr 3.2 Fr 3.2 Sr 3.2	



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.	(None)		
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.	10. c. Encouraging contact among students from different economic, social, and racial or ethnic backgrounds.	Fr 3.0 Sr 3.0	All
III. 3. Graduates will have had experiences that promote the ability to analyze unfamiliar situations, assess risk, and formulate plans of action.	(None)		
III. 4. Graduates will have been made aware of the importance of lifelong learning.	(None)		
III. 5. Graduates will have had experiences that promote a global and societal perspective.	(None)		

IV. 1. Graduates will have had defined roles in teamwork experiences in which both process and progress are monitored.	(None)		
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.	1. g. Worked with other students on projects during class.  1. h. Worked with other classmates outside of class to prepare class assignments.  11. h. Working effectively with others.	Fr 3.0 Sr 3.0  Fr 3.0 Sr 3.0  Sr 3.2 Fr 3.2	All  All  All
IV. 3. Graduates will have had team experiences in which they practice making decisions, reaching consensus, and resolving conflicts.	11. h. Working effectively with others.	Fr 3.2 Sr 3.2	All

V. 1. Graduates will have had opportunities to learn the value of contributing to their community and to society.	<p>1. k. Participated in a community-based project (e. g. service learning) as part of a regular course.</p> <p>7. b. Community service or volunteer work.</p> <p>11. o. Contributing to the welfare of your community.</p>	<p>Fr 1.9 Sr N/A (except Arch (not mandatory); other schools do not have this requirement)</p> <p>Fr 0.9 Sr 0.5 (Fr&gt;Sr because of transfers) Fr 2.0 Sr 2.0 (Get Sr equal to Fr)</p>	
V. 2. Graduates will have had opportunities to develop personal values as the foundation of integrity and professional ethics.	11. n. Developing a personal code of values and ethics.	<p>Fr 2.0 Sr 2.0 (Get Sr equal to Fr)</p>	

Additional wording for questions:

1. In your experience at your institution during the current school year, about how often have you done each of the following? (1=Never; 2=Sometimes; 3=Often; 4=Very often)
2. During the current school year, how much has your coursework emphasized the following mental activities? (1=Very little; 2=Some; 3=Quite a bit; 4=Very much)
3. During the current school year, about how much reading and writing have you done? (1=None; 2=1-4; 3=5-10; 4=11-20; 5=More than 20)
4. During the current school year, about how often have you done each of the following? (1=Never; 2=Sometimes; 3=Often; 4=Very often)
5. Which of the following have you done or do you plan to do before you graduate from your institution? 0=Have not decided, Do not plan to do, Plan to do; 1=Done)
6. To what extent does your institution emphasize each of the following? (1=Very little; 2=Some; 3=Quite a bit; 4=Very much)
7. To what extent has your experience at this institution contributed to your knowledge, skills, and personal development in the following areas? (1=Very little; 2=Some; 3=Quite a bit; 4=Very much)

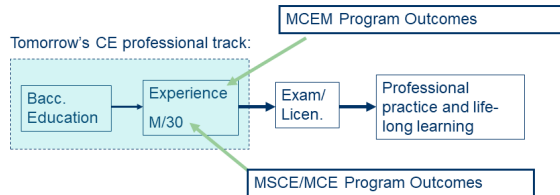
## Civil Engineering Graduate Program 5-Point Assessment Plans

## CE Department Goals for Assessment Plan

- GR and UG assessment plans follow the same structure
- A plan for each Master degree
  - Master of Science in Civil Engr & Master in Civil Engr (MSCE & MCE)
  - Master in Construction Engr Management (MCEM)
- Annual reviews and implementation of revisions

## Civil Engineering Program Foundation

- Civil Engineering Body of Knowledge
  - Preparing the civil engineer for the future, Second Edition. (denoted BOK2) ASCE



## 5-Point Assessment Plan

- Program Objectives
- Primary Program Outcomes ←
- Assessment Tools ←
- Assessment Timeline
- Program Review Process ←

## Objective & Outcomes – MCEM

### Program Objective

Provide students with a thorough understanding of construction processes as they relate to building and infrastructure projects.

### Primary Outcome (Measurable)

*Formulate* appropriate processes, subsidiary plans and contract documents for incorporation into the project management plan

## Primary Outcomes – MCEM

- Project Management, L5
- Communication, L5
- Public Policy, L3
- Professional and Ethical Responsibility, L5
- Business and Public Administration, L3

L1 through L6 refer to levels of achievement based on Bloom's Taxonomy:

(L1) – Knowledge  
(L2) – Comprehension  
(L3) – Application

(L4) – Analysis  
(L5) – Synthesis  
(L6) – Evaluation

## Primary Outcomes – MSCE/MCE

- Problem Recognition and Solving, L4
- Technical Specialization (MCE - L5 & MSCE – L6)
- Communication, L5

L1 through L6 refer to levels of achievement based on Bloom's Taxonomy:

(L1) – Knowledge  
(L2) – Comprehension  
(L3) – Application

(L4) – Analysis  
(L5) – Synthesis  
(L6) – Evaluation

## 5-Point Assessment Plan

- Program Objectives
- Primary Program Outcomes
- **Assessment Tools**
- Assessment Timeline
- Program Review Process

## Assessment Tools

- Exit Interview
- Alumni Surveys
- Direct Assessment
  - Courses
  - Thesis and GR Project

**Responsible Party**  
Department Chair  
Graduate Director (3 years)  
All Faculty

Each tool has performance criteria

Assessment Tool	Description	Performance Criteria
Exit Interview	The Department Chair or Graduate Director 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 and specific <b>graduate program outcomes</b> .	85% of graduating students must agree that they have reached the achievement level 5 in a minimum of one technical specialization
Alumni Surveys	A survey of the alumni are used to determine if the graduates agree that the program enabled them to reach level 6 achievements in at least one technical specialization.	85% of alumni must agree that completing the graduate program enabled them to reach the achievement level 6 in a minimum of one technical specialization after completing 2-4 years of practical experience
Thesis and Graduate Project	The thesis and project committee must have a minimum of two Civil Engineering faculty members, a faculty member from another engineering or science department or an external member from industry or another university. All members must hold a Master or equivalent degree in the subject area to qualify as committee member.	The members excluding the advisor(s) are to prepare a summary report outlining the quality of the thesis or project. In addition to addressing outcomes a) – g) the members will evaluate the quality and quantity of work
Direct Assessment	Direct assessment of student learning is performed in specific courses. Each graduate civil engineering course will have learning objectives.	Rubrics for each program outcome relate levels for the specific learning objectives to the program outcomes.

## Direct Assessment

- Course learning objectives
  - weekly assignments, projects & exams
- Common rubric for each program
  - Linking course learning objectives to primary program outcomes
- 2-4 courses per program assessed each academic year

## Direct Assessment in 08/09

Degree	F08	S09
MSCE & MCE	Adv. Concrete Design (Eamon)	River Engineering (Yuen/adjunct)
	Earth Retaining Structures (Hettiarchchi)	Pvmt Analysis and Performance (Jensen)
MCEM	Construction Law (Tocco)	Tech of Project Planning and Control (Tocco/adjunct)
	Construction Acc. & Finance (Tocco/adjunct)	Risk Mgt and Claims (Tocco)

## Course Purpose Documents

- Standard document for each course
  - Course description
  - Course learning objectives
  - Linking specific course learning objectives & program outcomes

Course Obj	Project Mgt	Problem Recognition & Solving	Technical Specializ.	Communication	Public Policy	Business & Public Admin.	Professional & Ethical Responsibility
1.		4	4				
2.		2	4				
3.			4	3			
4.		(L1) – Knowledge Analysis		5	4		(L4) –
5.		(L2) – Comprehension					(L5) –
6.		Synthesis		5			
7.		(L3) – Application					(L6) –
8.		Evaluation		5			
9.			5				
10.			5				
11.			4				
Highest Level		L4	L5	L4			

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## Program Review Process

- Action plan determined by
  - Civil engineering full-time faculty,
  - Civil engineering adjunct faculty, and
  - Civil engineering advisory board.
- Student input - annual graduate mixer hosted by the Civil Engineering Department.

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## Thank you

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## Assessment of Graduate Programs

Considerable progress was made in developing plans for assessing LTU's graduate programs:

- The Director of Assessment and the Associate Provost met with all graduate program directors to discuss their plans.
- A one-day workshop was held in January 2008, during which Dr. Pam Bowers, Director of Assessment at Oklahoma State University, gave an all-day session guiding graduate faculty in writing assessment plans for their programs.
- Follow-up meetings between the Associate Provost and the graduate program directors ultimately resulted in receiving assessment plans for all graduate programs.

All graduate programs have included assessment plans in their Academic Planning and Program Review Process documents.

## LTU “Character Education” Undergraduate Educational Goals

Steve Howell and Don Carpenter

### Review

- 2007 Assessment Day – presentations of character education and professional ethics
- CTL Panel Discussion on Character Education – November 2007
- Spring 2008 – Departments asked to reach consensus on revised Character Education Survey to initiate discussion
  - Today’s Breakout Agenda
- Fall 2008 – Freshman will be completing Portrait Values Questionnaire
- Spring 2009 – Seniors will be completing Portrait Values Questionnaire

### 2008 National Survey of Student Engagement (NSSE) benchmark results

		LTU compared with:							
		LTU	Geog. Peers	Carnegie Class	NSSE 2008				
		<i>During the current school year, about how often have you done each of the following?</i> 1=Never, 2=Sometimes, 3=Often, 4=Very often							
Additional	Collegiate Experiences								
a.	Attended an art exhibit, play, dance, music, theatre or other performance	FY	2.11	2.35	-.25	2.18	-.07	2.22	-.12
		SR	1.88	2.21	-.35	2.01	-.15	2.07	-.22
b.	Exercised or participated in physical fitness activities	FY	2.59	2.86	-.26	2.74	-.14	2.79	-.19
		SR	2.42	2.69	-.26	2.58	-.16	2.68	-.25
c.	Participated in activities to enhance your spirituality (volunteering, meditation, prayer, etc.)	FY	1.85	2.11	-.24	1.96	-.10	2.06	-.19
		SR	1.74	2.15	-.38	2.05	-.28	2.11	-.33
d.	Examined the strengths and weaknesses of your own views on a topic or issue	FY	2.56	2.67	-.12	2.55	.02	2.60	-.04
		SR	2.43	2.77	-.34	2.65	-.22	2.69	-.26
e.	Tried to better understand someone else's views by imagining how an issue looks from his or her perspective	FY	2.76	2.82	-.06	2.74	.02	2.76	-.01
		SR	2.60	2.89	-.35	2.82	-.26	2.83	-.28
f.	Learned something that changed the way you understand an issue or concept	FY	2.90	2.88	.02	2.82	.10	2.85	.06
		SR	2.73	2.95	-.28	2.87	-.17	2.89	-.19

## LTU “Character Education” undergraduate goals

- **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.

### National Survey of Student Engagement (NSSE)

- The National Survey of Student Engagement (NSSE) obtains information from hundreds of four-year colleges and universities nationwide about student participation in programs and activities that institutions provide for their learning and personal development. Survey items on the NSSE represent empirically confirmed “good practices” in undergraduate education. In the Spring 2008 semester, Lawrence Tech participated in a NSSE survey of its freshmen and seniors.

### 2008 National Survey of Student Engagement (NSSE) benchmark results

		LTU compared with:							
		LTU	Geog. Peers	Carnegie Class	NSSE 2008				
		<i>Which of the following have you done or do you plan to do before you graduate from your institution? (Repeat: If “Yes” or “Not decided,” do not plan to do. If “No,” then, do not answer the question regarding “Done” among all valid respondents.)</i>							
Enriching Educational Experiences									
b.	Community service or volunteer work	FY	.43	.43	.00	.35	.15	.38	.09
		SR	.46	.62	-.35	.55	-.18	.60	-.28
c.	Foreign language coursework	FY	.19	.27	-.18	.18	.04	.22	-.07
		SR	.13	.42	-.57	.34	-.44	.41	-.57
f.	Study abroad	FY	.07	.03	.29	.03	.25	.03	.24
		SR	.04	.19	-.39	.10	-.21	.15	-.31

## 2008 National Survey of Student Engagement (NSSE) benchmark results

			LTU compared with:						
			LTU	Geog. Peers	Carnegie Class	NSSE 2008			
			To what extent has your experience at this institution contributed to your knowledge, skills, and personal development in the following areas? 1=Very little, 2=Some, 3=Quite a bit, 4=Very much						
Educational and Personal Growth									
i.	Voting in local, state, or national elections	FY	1.87	2.04	-.36	2.24	-.54	2.24	-.53
		SR	1.57	2.00	-.42	2.10	-.51	2.11	-.52
k.	Understanding yourself	FY	2.77	2.85	-.08	2.79	-.02	2.81	-.04
		SR	2.31	2.90	-.61	2.79	-.47	2.83	-.52
l.	Understanding people of other racial and ethnic backgrounds	FY	2.60	2.73	-.14	2.68	-.09	2.67	-.08
		SR	1.92	2.69	-.78	2.66	-.74	2.65	-.73
n.	Developing a personal code of values and ethics	FY	2.65	2.78	-.13	2.67	-.02	2.70	-.05
		SR	2.27	2.82	-.55	2.68	-.39	2.71	-.43
o.	Contributing to the welfare of your community	FY	2.28	2.54	-.27	2.42	-.13	2.47	-.19
		SR	1.87	2.53	-.64	2.44	-.55	2.48	-.59
p.	Developing a deepened sense of spirituality	FY	1.84	2.29	-.41	2.12	-.27	2.15	-.29
		SR	1.47	2.12	-.59	1.93	-.43	1.96	-.45

### Assessment of Character Education

Consideration of the best ways to assess LTU's Character Education goals continued in the 2008-09 academic year, with emphasis on how students are introduced to the concept of professional ethics and how this might be assessed. Assessment Committee representatives were tasked to consult with their Departments on this subject, and in subsequent discussions the following points were made:

Lisa Anneberg (substituting for Rakan Chabaan, Electrical and Computer Engineering) gave a presentation to the Committee on how and when Professional Ethics are being assessed in ECE. Discussion of the NSPE code of ethics is included in three courses: Introduction to ECE (EEE1003), Digital Electronics (EEE2214), and Introduction to Projects (EEE3011 etc.) The code is presented mostly through class discussion. ECE no longer uses the assessment supplied by NSPE; professional ethics are now being assessed, along with lifelong learning, in Intro. to Projects, though a short multiple-choice instrument.

A quick survey of exposure to and assessment of professional ethics in each department yielded the following:

Architecture: Professor Faoro has proposed a course called "Design Ethics", based on NAAB feedback. This proposal is presently tabled but will be brought up again.

CE: A one-credit, senior course, Ethics and Professional Issues, is required by ABET.

ME: Discussed in Introduction to Engineering. Students are assigned a paper and discussed the ethical implications of the topic. Outside speakers are brought in to Senior Projects to discuss ethics.

Eng. Tech.: Used to use the HSSC Ethics course, but this has been discontinued. This is also part of Senior Projects.

MCS: Discussing how to fill the requirements of ABET in this area. The ACM code of ethics is not particularly addressed. Nothing is happening in Math, as there is no professional code of ethics.

HSSC: Codes perhaps exist for Psychology, Technical Writing, and Media – Jason will check.



NS: Scientific ethics are addressed in the Physics seminar (a first-year course). Chemistry students used to take this course also but this has been discontinued. Addressing this is on the Natural Sciences agenda but so far nothing has been done.

BSIT: Ethics are addressed in two required courses: Infotech Inaugural and Tech Infrastructure. BSIT majors are required to complete the ICCP exams, one of which covers ethics.

The point was made that for programs where there is no such code of ethics, the LDR program has components that could address this objective

#### Attendance at Conferences

Due to budgetary restrictions on travel, no conferences were attended 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 practice is no longer required by the NCA, and since over the years these levels had reached a rather high plateau and were no longer yielding useful information, this practice has been discontinued.

## Annual Assessment Reports of Colleges by Department

### College of Architecture and Design

#### *Undergraduate Architecture Department*

Objectives and Outcomes

Assessment Summary 2008-2009.

#### 1. Program Educational Objectives, Outcomes and Accreditation Status

Lawrence Technological University  
College of Architecture & Design  
Architecture Department

Assessment Report for Academic Year 2008-2009

Prepared by: Daniel Faoro, Dept Chair  
Ash Ragheb, Assessment Rep for Architecture Dept.

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 received a full six-year accreditation from NAAB, in the Spring 2008 visit which reviewed both undergraduate and graduate program courses.

#### 2. Assessment Activities and Assessment Results

The following yearly plan was conceived during Fall 2008:

This year the College placed an emphasis on the graduate program level assessment plans, faculty were assigned roles to serve on that committee. A separate Graduate Assessment report will be submitted.

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 new Updated NAAB criteria (Fusion Model) were released in Feb 2009 and will be referred to for consideration in proposed curricular committee changes.

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 2008-2009).

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 e-mails, letters, and faculty meetings throughout the year.

### 3. Other items accomplished for the academic year 2008-2009

The Department of Architecture Assessment Committee will be chaired by Professor Ashraf Rageb during the 2008-2009 academic year. Professor Daniel Faoro, will be Interim Department Chair and coordinating assessment activities in the department.

#### Assessment of the university-wide educational goals

1. Writing and Oral Communication skills. The summer of 2008 the University writing skills subcommittee reviewed papers submitted in Spring 2008, by the Architecture Dept. (3000) level classes and compared results to 2003 writing skill assessments. Results were reported in the LTU University Assessment Meeting Sept. 2008.

1a. The Oral Communication subcommittee of the University Assessment Committee and their assessment plan involved the Dept. of Architecture which documented the student presentations in Prof. Faoro's fourth year Sustainability Studio (ARC4224), where they recorded and graded observations of student studio presentations, by the Universities Committee members. The LTU university committee will present their observations in Sept, 2009, we have requested, and were granted, the observation data for CoAD students. (see Appendix 1 ) for the report)< NEED TO PROVIDE SUMMARY OF OUTCOMES>

1b. Writing Skills: Our recent NAAB accreditation review report (2007) included references to writing skill levels as follows. The Team report cited ,”low level writing skills”. As a result the department was charged by the administration to consider ways to expand and increase writing skills in the history sequence, and in undergraduate courses.

The CoAD Faculty Council convened an adhoc committee to prepare and plan a writing improvement program comprised of Professor(s) Martin Schwartz-Chair, Dale Gyure,

Gretchen Rudy, and Elizabeth Simmons-ARC Library staff. The committee met periodically in the semester and coordinated their work with the LTU Humanities faculty. (see Appendix 2 for the report.) In summary the committee made recommendations to revise courses though-out the program to emphasize written communication skills , provide examples of increase writing assignments, recommended grading standards, and revised perquisites for junior/senior division history/theory classes. In addition the required two courses in the architecture and art history sequence (ARC2613 & ARC2623) were viewed as problematic due to large class enrollment size (90-100) and lack of adequate instructional resources to properly evaluate and implement writing based assignments in these courses. The dept. agreed to reduce class size to 30 and provided adjunct faculty member to evaluate essay exams.

The Committee recommended the following regarding the history and theory curriculum to increase the emphasis on writing: (a) English Composition (COM 1103) should be made a prerequisite for HDE 1 in

anticipation of more writing in this course in the future; and (b) passing the Writing Proficiency Exam (COM 3000) should be made a prerequisite for all history and theory electives

## 2. Character, Leadership and Ethics Assessment:

2a. The Department was scheduled to participate in the university wide 'Portrait Values' Character exams for Freshman,-Fall 2008, and Seniors-Spring 2009, which was cancelled by the university for reasons unknown.

2b. Ethics: The NAAB (2007) Department Accreditation report cited the following areas of concern that require curricula or course modifications.

- NAAB Criterion (13.34) Ethics and Professional Judgment. The team comments suggest broadening and strengthening ethics course content in the program. The dept. believes some existing ethics course content was not well documented in some courses but does exist currently in the curriculum.

In 2007-08 The CoAD faculty council convened an ad hoc committee to discuss the inclusion of the LDR 2001 class into the college degree programs. The committee strongly recommended that no additional credits be added to the existing 133 credit BS In Arch. Degree. The faculty recommended reinforcement of ethics content at multiple levels of the program and requiring students to address the ethical issues in graduate studios and thesis work, and strengthening professional ethics in the graduate professional practice courses.

In order to retain the existing credit level and add the one credit LDR2001 course, A new two-credit, dual listed 5000/4000 level required ethics class (ARC4582/ARC 5582 Design Ethics) was approved by the faculty and Deans council to replace a senior level 3 credit elective. The class will be implemented in 2010-2011.

## 3. Advanced (Professional) Knowledge.

The NAAB (2007) Department Accreditation report cited the following areas of concern that require curricula or course modifications.

- NAAB Criterion (13.14) Accessibility. The designation of handicapped parking stalls was lacking in our capstone course Advanced Design 5 (AD5). This was considered a minor issue in the dept. and easily remedied by reinforcement of appropriate graphic conventions

The coordinator of (AD5) Prof. Tom Nashlen , has established an increased emphasis on the issue in future classes as a course coordination topic.

## 4. Overall Architecture Dept. Curricular Revisions.

The CoAD curricular committee has resumed meeting with Committee Chair- Philip Plowright and has proposed revisions to the design, technical, EM, and history /theory sequence. (see appendix 3). The committees' work is in the formative stage and is ongoing into Fall09/Spring10 term.

### 4a. Curricular revisions to Third year.

In 2007-08 our student feedback efforts from the CoAD student group have indicated an ongoing concern for coursework overloads in the third year of the program. A student survey was completed by Professor(s)

Daniel Faoro, Interim Arch. Dept. Chair and Virginia North, Assistant Dean, with assistance by Morgan MacDonald –CoAD graduate student- to identify problem areas, work overload and imbalances in specific courses and overall coordination of coursework in the third year, (see appendix 4 for survey results). The survey had a large response rate (approx. 70%) and indicated clearly that an overload condition was present in the third year, in addition the Building systems courses were cited as contributing to the problem due to a imbalance between course credits and course loads. The results were reviewed by the Deans and Chair with the Building Systems Coordinator, Ash Rageb. He has met with faculty to review survey findings and will implement course work reductions for the 2009-2010 year.

#### Departmental Level Assessment Work Plan- 2009/2010.

1. To integrate of the new Leadership coursework required by the university into the degree requirements. The College has appointed Prof. Gretchen Maricak as the Leadership Program Coordinator, she is planning to develop student leadership documentation requirements, and establish a faculty leadership committee, and expand leadership curricular initiatives in service learning, urban /community design, and global awareness. In addition, the new Design Ethics class will require course development work.
2. Development of CoAD Curriculum Committee based proposals to address the NAAB curricular issues, and University Goals topics as cited above.
3. Implementation of the CoAD Writing committee recommendations for the program and the Hist./Theory sequence, and the revisions in the Buildings Systems courses for reduced course work load.

***Department of Art & Design***  
 College of Architecture  
 Department of Art and Design  
 2008-2009 Assessment Report

1) Programs educational objectives, outcomes, accreditation status:

The Art and Design Department offers two undergraduate degrees; a Bachelor of Arts in Imaging and a Bachelor of Science in Transportation Design.

The educational outcomes of the Bachelor of Fine Arts in Imaging are established and accredited by the National Association of Schools of Art and Design (NASAD).

The Bachelor of Science Degree in Transportation Design has applied for accreditation by NASAD, as well, and is pending further review.

The BFA degree in Imaging is based on a broad foundation in the fine arts and visual communication with application to a variety of media and techniques to achieve creative design solutions to design problems. The primary goal of the program is to apply creative design processes to the development of skills in hand drawing, graphic identities, photography, motion graphics and other new and emerging technologies that meet the needs of corporate and private enterprises.

The Bachelor of Science in Transportation Design program provides advanced knowledge, skills and experience to be part of and to lead design teams in developing vehicle concepts that integrate marketing, ergonomics, engineering, manufacturing and sustainability in a global market.

The advisory council for the Imaging Program is in its third year of overseeing the goals and vision of the program in the areas of technology, practice and education.

The advisory council for the Transportation Program is in its second year. A new advisory council for the development of an Industrial Arts Program has been formed during 2009.

All in-house assessment activities support the University Educational Goals and Assessment foci.

(2) Assessment Activities and Assessment Results:

Learning objectives are written for each course, oral assessments and written performance appraisals are rendered for projects done in each course.

Student learning is constantly monitored during class sessions, at mid-term and in final reviews; wherein, oral, graphic and written presentations are required to demonstrate student capacity to understand and develop project intent.

Contact with the professional community is supplied by outside critics and jurors invited to all student reviews who provide performance appraisals to students along with feedback conversation with program directors, coordinators and faculty.

There are professional evaluations for all capstone courses.

In the field of design, competitions replace national exams for our students to demonstrate knowledge and talent, as well as, effective use of advanced technologies.

The Transportation Program entered the following competitions in AY 2008-09: Formula Zero ( 1st place), Sabic Innovation Plastics Car Design Competition (2nd, 3rd place).

The program was one of six international universities selected to compete in the Ford Motor Company's Model T Design Competition.

This program uses the following software: Photoshop, Illustrator, Indesign, Maya, After Effects, Catia, Delta Gen and Alias.

External reviewer's comments during studio reviews are noted and serve as an informal survey of LTU employers and their perception of our student's design capabilities and use of technology.

Class work is regularly exhibited in our classrooms, galleries and hallways. Often the work is collected in portfolio style.

Our students demonstrate creativity and critical thinking, as well as, analytical and problem solving skills in a variety of course specific approaches.

The programs in the College of Architecture and Design, as a whole place a priority on developing personal values as the foundation for the professional ethics mandated by accrediting agencies' learning criteria.

Our success in instilling a sense of professional ethics is in part illustrated by our student's involvement in service learning and outreach programs.

There are internship requirements for each program and their results are continuously monitored to guide curriculum and course content.

Both BFA programs document how and when each program's course offerings accomplish the university's undergraduate educational goals.

(3) Action Plan for Academic year 2009-2010:

In May of 2009, CoAD passed a motion to increase the requirements for writing assignments and writing skills.

The Imaging program will survey its instructor's to determine how the subject of Professional Ethics is being addressed.

*Recommendations for the Incorporation of Writing Assignments and the Reinforcement of Writing Skills in the College of Architecture and Design*

Final Report

Submitted to Faculty Council, College of Architecture and Design May 4, 2009

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- 1.0 Introduction
- 2.0 Executive Summary of Recommendations
- 3.0 Background Materials
- 4.0 Recommendations for Department of Art and Design Courses
- 5.0 Recommendations for Department of Architecture and Interior Design Courses

1.0 Introduction

Assigned Task from the College of Architecture and Design Faculty Council

On February 2, 2009, Faculty Council authorized the establishment of an ad hoc Writing Committee to develop recommendations for incorporating writing assignments and reinforcing writing skills in the CoAD curriculum and to carry out policies established by the University, the College, and the NAAB Visiting Team, subsequent to the accreditation visit in the spring of 2008. A preliminary report was sent to the Provost in December 2008; the same was shared with Faculty during a CoAD Faculty meeting on January 7, 2009. Also, as we prepare this report, the Graduate Writing Committee is working to assess writing in our graduate program. The Writing Committee's report is to be submitted to the Faculty, Dean, and Provost for approval. The membership of the Writing Committee is Dale Allen Gyure, Gretchen Rudy, Elizabeth Simmons, and Martin Schwartz (chair).

2.0 Executive Summary: Conclusions and Recommendations

Introduction: The Commitment of the College of Architecture and Design

The faculty of the College of Architecture and Design (CoAD) believes that written and verbal competencies are essential intellectual and professional skills, that competent written communication is an exercise in, and a reflection of, clear thinking, and that our courses must reinforce these skills. In view of this commitment, we recommend the following:

1. Writing in Architecture and Design Courses

The CoAD will reinforce the importance of writing skills in all appropriate courses and in all assignments that consist of or contain written material. This includes short or extended essays as well as assignments that are primarily graphic.

2. The Assessment of Writing Proficiency

Writing in course assignments will be assessed for content, clarity, and mechanics by the course instructor. Students will be asked to make corrections where necessary. Accuracy in spelling, grammar, syntax, and format is to be required in the presentation of all writing, including primarily graphic assignments. Deficient writing is to be identified and students are to be referred to the Academic Achievement Center for help. Instructors are asked to retain examples of writing for the assessment of the progress of our students over the course of time.

3. Core Curriculum Courses



Efforts to enhance and improve core courses will be encouraged so that writing and reading skills may be taught more effectively to students in the College of Architecture and Design. CoAD faculty should support these improvement efforts.

#### 4. Writing Instruction in the University Curriculum

Remedial writing courses should be created in accordance with the University's Foundations of Excellence newsletter recommendation (March, 2009) for those students who lack writing skills after completing required coursework in this area (seven courses and the proficiency exam).

#### 5. University Support for Writing Proficiency

The University should provide funding for additional writing skills instructors so that writing assignments can be expanded and properly assessed in history and theory courses. Most faculty members in the College are not trained in the teaching of writing skills. The primary responsibility for teaching writing skills remains with qualified faculty and writing coaches in the Department of English and Communication Arts and the Academic Achievement Center (AAC) whose work and commitment the College supports. The effectiveness of the AAC and the Writing Proficiency Exam should continue to be assessed at the University level.

#### 6. University Support for Research Skills

The University should re-introduce into the University Seminar (COM 1001) bibliographic, information literacy, and research skills instruction in addition to information about standards of academic honesty.

#### 7. Library Support for Research Skills

CoAD faculty will be advised of existing opportunities for research instruction at the University library. Qualified librarians are available to teach students (and faculty) the proper use of library resources including the use of search tools and databases, research and bibliographic aids, handbooks, and codes. These skills are required for students engaged in precedent research, case studies, and other project work. We recommend that CoAD faculty be given instruction in the use of "Safe Assignment" (plagiarism detection tools available on BlackBoard) or other similar tools. An outline of specific tools and software available at the library may be found in this report in section 3.4, Writing Resources.

#### 8. Publication of Standards for Good Writing

The CoAD will incorporate information about University and Library resources and specific standards for writing skills into all course syllabi, course descriptions, or other introductory course documents rather than simply referencing them. Writing standards include the "Banned Errors List" and the "List of Common Small Mistakes." University and Library resources are those cited in this report.

#### 9. Grading Written Work

CoAD faculty will assess written communication much as graphic communication is currently assessed; poor written communication should be reflected in lower grades.

#### 10. Adjunct Faculty Support

CoAD adjunct faculty members are to be informed, by subject area coordinators, of the College's standards and the University's support resources and that they are required to support the writing initiatives in their courses.

Supporting material for these ten recommendations and program-specific comments may be found in the following sections of the report.

### 3.0 Background Materials

#### 3.1 University Efforts

In 2003, the University Technical and Professional Writing Committee (Dale Allen Gyure, George Hayden, Brian Pedell, Chris Riedel; representatives of the Lawrence Tech Colleges) submitted a comprehensive analysis of student writing. The Committee made three main recommendations when the report was submitted to the Office of the Provost: the reinforcement of proofreading and editing skills, a proposal for Writing-Across-the- Curriculum instruction, and recommendation for further assessment.

A 2006 letter from Provost Maria J. Vaz further asks faculty to cooperate in a University-wide effort to improve students' writing skills:

“As a faculty member, we are asking you to be a partner in this campaign to help our students to improve their writing skills as they progress towards the completion of their degree. The writing skills of our students will only improve if you require assignments in which the students write within their discipline.”

In 2008, the University Writing Assessment Committee (Benjamin Benson, Barry Knister, Chris Riedel and Gretchen Rudy) reported at Assessment Day that students still need to improve their writing skills. The four recommendations, including placement of the COM3000 exam, embedding writing within courses, writing coordination across courses, and support structure, were presented again to the College faculty during a meeting January 7, 2009.

Those ideas are discussed in this report.

#### 3.2 NAAB Findings

Student writing skills were identified as deficient in the 2008 NAAB Visiting Team Accreditation Report. The Report states that

“While the team finds that this criterion is met, the team is concerned with the generally low level of writing skills among the student work presented...written material from all sources has serious shortcomings and the overall impression of student writing is not compelling...Basic grammar and spelling errors with both graphic presentations and papers are endemic and seriously undercut the professionalism of the students' work.” (Visiting Team Report, page 5, Writing Skills)

#### 3.3 How and Where Writing is Taught

Students enrolled in the architecture program are required to take the following Humanities Core courses whose content includes the development of writing skills:

COM1001 University Seminar COM1103 English Composition

COM2103 Technical and Professional Communication LLT1213 World Masterpieces 1

LLT1223 World Masterpieces 2

SSC2413 Foundations of American Experience SSC2423 Development of American Experience

All of the courses above have writing components and address skills development for both reading and writing at the university level.

University Seminar (COM1001) requires that students complete ten journal entries and write a final paper on a specified topic (e.g. Service and Leadership). The course syllabus provided by Dr. Avilés (Spring 2009) shows “Masterful 3-Paragraph Paper” as a topic area covered in the second class. Hence, students have an opportunity in the early weeks of their initial semester to either review and/or hone writing skills learned in high school or at other post-secondary institutions.

English Composition (COM1103) demands three essays (700-1000 words), a research paper (1500-2500 words), mid-term exams, and final exams. In addition, there is an assignment for an annotated bibliography and for a research presentation. Charles Graski's course syllabus (provided for this analysis) offers three course lecture dates assigned to skills development topics including "Research: Writing with Sources" and "Intro to Research and Research Writing." This includes meeting in the main library for bibliographic instruction. The course explicitly covers the following types of writing: analysis, explication techniques, comparison and contrast, writing articles about stories, persuasive writing and research.

Technical and Professional Communication (COM2103), as described in the Core documentation, teaches "clear, persuasive communication. Speaking, writing, and research skills are polished, and group projects develop teamwork. Computer graphics and visual communication are emphasized...."

World Masterpieces 1 (LLT1213) and World Masterpieces 2 (LLT1223) syllabi were provided by Joyce Munro. The writing components in these courses include weekly paragraph assignments ("like a journal," said one student) with highly detailed structural requirements (i.e. the paragraphs must "be at least five sentences long, have a clear topic sentence, include only sentences developing that topic sentence, etc.). In addition, there are three term paper assignments. The course syllabi also contain an "essay outline" that clearly demonstrates and explains the components of a university-level essay (Introduction, Body, Conclusion, Sources). Additionally, according to the course syllabi, the following writing errors are demonstrated, explained, and banned from assignments: fragments, comma splices, subject-verb disagreement, incorrect pronoun usage, and common contraction errors (i.e. its and it's). This list of Banned Errors is also published directly on the University's website

(See [http://www.ltu.edu/currentstudents/banned\\_errors.asp](http://www.ltu.edu/currentstudents/banned_errors.asp)).

Both courses also have written mid-term and final exams.

The American Experience courses (SSC2413 syllabus supplied by Dr. Philip Vogt, SSC2423 syllabus supplied by Dr. Jason Barrett) demand essay papers (two in 2413; three in 2423 consisting of four pages in each); both courses have mid- term and final term exams. Additionally, SSC2423 requires reading and writing assessments (six to eight) including in-class quizzes on reading and writing exercises and peer editing of paper drafts. These courses present challenging philosophical reading materials and expect students to be able to write in explanatory and persuasive fashions utilizing arguments and proofs.

#### IV. 3.4 Writing Resources at Lawrence Technological University and the College

- The Main Library keeps an extensive supply of style guides and writing handbooks in both the Reference section and the stacks.
- Research Assistance: an entire section on the Library's website with tools for writing, dissertation publication, citation, references, and avoiding plagiarism. See [http://www.ltu.edu/library/index1.asp?\\_wds=cs](http://www.ltu.edu/library/index1.asp?_wds=cs)
- RefWorks is an online bibliographic manager that aids research, the handling of research references, and the formatting of bibliographies. RefWorks accounts are free to students.
- Write-N-Cite is a plug-in that works in conjunction with RefWorks to format citations within the body of essays. Accounts are free to students.
- The Academic Achievement Center offers writing proficiency classes, workshops and tutoring.

- The Banned Errors, Minor Writing Errors to Avoid lists introduced in the Core courses are accessible on the university's College of Arts and Sciences website from the Writing Tools resources page. See [http://www.ltu.edu/currentstudents/banned\\_errors.asp](http://www.ltu.edu/currentstudents/banned_errors.asp)
- The Essay Organization outline on the university's College of Arts and Sciences website is accessible at [http://www.ltu.edu/arts\\_sciences/humanities\\_ss\\_comm/essay\\_organization.asp](http://www.ltu.edu/arts_sciences/humanities_ss_comm/essay_organization.asp)
- Academic dishonesty is addressed on the College of Arts and Sciences' website; refer to [http://www.ltu.edu/arts\\_sciences/humanities\\_ss\\_comm/plagiarism.asp](http://www.ltu.edu/arts_sciences/humanities_ss_comm/plagiarism.asp)
- Writing guidelines are outlined on the HSSC website as follows:  
[http://www.ltu.edu/arts\\_sciences/humanities\\_ss\\_comm/writing\\_guidelines.asp](http://www.ltu.edu/arts_sciences/humanities_ss_comm/writing_guidelines.asp)

#### V. 3.5 Other References

- LTU Technical and Professional Writing Committee Report, 2003
- LTU Technical and Professional Writing Committee Report, 2008
- LTU Foundations of Excellence Newsletter, March, 2009
- Various course syllabi (cited above)
- A Description of the Core Curriculum, supplied by Gladys Aviles, Foundations of Excellence Evidence Library, 2008

### 4.0 Recommendations for Department of Art and Design Courses

#### 4.1 Basic Design

##### Suggested types of assignments and subjects for writing assignments

The assignments in these classes are primarily graphic with a minimum amount of written communication. More involved writing assignments are associated with the AIAS Cardboard Chair Competition, which requires two well-developed essays dealing with conceptual issues, the design process, technical information, and methods of construction. Instructors are asked to retain examples of writing for overall assessment of the progress of our students over the course of the degree program.

##### Goals

The primary objective of writing in the studio is the development of concept statements associated with design projects, and expository writing associated with analysis and critical thinking. Writing skills gained in other courses are reinforced. Spelling, grammar, and general accuracy in written material are required, and grades reflect these writing skills.

##### Length of Assignments

Assignment length will correspond to the needs for teaching basic design and graphic skills.

#### 4.2 Imaging Program

### Suggested types of assignments and subjects for writing assignments

The Imaging thesis courses currently include projects that require writing. Examples of writing in the curriculum include:

- Concept statements, statements of goals, and objectives towards the thesis.
- With each project, students are expected to prepare an in-depth written exploration or concept statement with precedent studies.
- Through the thesis research, students prepare a process study, in writing, including reference documentation and footnotes. The students meet in the resource library and with reference librarians.
- Imaging has implemented a reading and discussion seminar. Within each assignment, students are assigned a series of questions. This prompts a writing exercise during the discussion. During each such critique, the presenting student must submit a project profile, a single page that summarizes the key points of the project. Another student is responsible for writing up a critique of the profile. They two then lead the critique session.
- The written Imaging thesis is a three-part document that includes a written report demonstrating the student's mastery of some facet of design, rich visual examples of the ideas that are to be communicated, and a selection of the student's best design work at Lawrence Tech. The written portion is expected to be at least 3500 words long and have proper MLA citations.

The photography curriculum also includes written assignments:

- Students are expected to write a paper and discuss the relationship of an artist who uses photography as their medium with another artist from another field. The purpose is to suggest that the medium of photography is not isolated but part of a larger field of expression. The paper is expected to offer insight to the subject matter of both artists both in text and supported visually.
- Students are expected to write critiques of their peers' work as well as their own work.

### Recommendations

Each of the imaging courses will incorporate a writing component within their syllabi. This was suggested at the beginning of the 2008-2009 school year. The program will need to assess the progress at the end of the year.

### 4.3 Transportation Design

#### Suggested types of assignments and subjects for writing assignments

Several opportunities exist to reinforce writing skills: project summaries, customer definitions, executive summaries, professional seminar lecture summaries, and a project booklet.

#### Goals

The goal of writing in initial design courses is to communicate the research conducted, design methodology process followed, an explanation of the design translation of images to a brand, and an integration of technology into components and materials into a product as evidence of their design knowledge and skill set.

#### Length of Assignments

Assignment lengths will be as appropriate to the project; some written assignments may accompany a semester-length project.

### 5.0 Recommendations for Department of Architecture and Interior Architecture Courses

#### 5.1 Visual Communication Courses

#### Suggested types of assignments and subjects for writing assignments

The assignments in these classes are primarily graphic with only a minimum of written communication.

#### Goals

The primary objective of writing in the studio is the reinforcement of writing skills gained in other courses. Spelling, grammar, and general accuracy in written material are required.

#### Length of Assignments

Assignment length will correspond to the needs for teaching visual communication and graphic skills.

### 5.2 Architectural and Interior Design Studio Courses

#### Suggested types of assignments and subjects for writing assignments

Case studies, building types studies, or precedent studies Programming studies

Design brief or program documents

Design concept, ethics, or strategy statements that accompany design presentations Materials or other technical/design related research assignments

Business plans and business communications exercises as in Interior Design Practice All presentation materials, on boards or in digital presentation formats

#### Goals

Explaining design intentions in an ordered written or spoken argument is good practice and good training for clarifying one's ideas. Therefore, the goals for writing assignments in architectural design courses are (1) the reinforcement of the notion that verbal and written communications skills are essential to the development of clear thinking and (2) that they are required for educational and professional competence. The primary objective of writing in the studio is the reinforcement of writing skills gained in other courses.

#### Length of Assignments

It is expected that most studio writing assignments will be brief, often appearing as material within graphic presentations. However, the assignment of essays is acceptable.

### 5.3 Building, Environmental Systems Design, and Other Technical Courses

#### Suggested types of assignments and subjects for writing assignments

Assignments that require writing skills include case studies or precedent studies; evaluations or assessments of technical systems in the work of exemplary architects; materials or other technical and design related research assignments; analytical reports of building mechanical systems with recommendations for sustainable improvements; and building systems narratives or other materials that accompany students' graphic assignments.

#### Goals

The goals for writing assignments in technical design courses are to reinforce the notion that verbal and written communications skills are essential to the development of clear technical and design thinking and that these skills are required for educational and professional success. Explaining design intentions in an ordered written or spoken argument is good practice and good training for clarifying and articulating technical design ideas.

### Length of Assignments

Short essays are acceptable; one or two written pages or about 500 to 750 words is the recommended length.

### 5.4 History and Theory

Suggested types of assignments and subjects for writing assignments Assignments include formal analyses, comparison and contrast papers, position papers, analytical evaluations, and research papers.

#### Goals

As Provost Maria Vaz stated in her 2006 letter to Lawrence Tech faculty, “good writing skills are an integral part of good communication for professionals in any field of expertise.” The goals of these writing assignments will be to bolster good writing habits previously learned, think critically and analytically, make logical arguments in support of their positions, and help designers learn how to describe their own and others’ work.

#### Assessment of Writing Proficiency

Writing will be assessed for content, clarity, and mechanics by the course instructor, and students will be asked to make corrections whenever possible. Accuracy in spelling, grammar, syntax, and format is to be specifically encouraged. Deficient writing will be identified and students will be referred to the Academic Achievement Center for help.

### Length of Assignments

The length of the assignment will depend on the particular class and purpose for writing. Formal analyses, comparisons, position papers, and analytical evaluations lend themselves to shorter assignments of three-to six pages, while longer research-oriented assignments may be up to fifteen pages in length.

#### Courses

Writing is appropriate for all history and theory area courses, and except for the History of the Designed Environment (HDE) sequence, current elective courses in this area already incorporate writing assignments. However, there are significant problems concerning the implementation of writing assignments in the HDE classes. The sections of these classes typically enroll 50-125 students, and each of two faculty members (one full time and one adjunct) usually teach more than one section per semester. The burden of having to grade that many writing assignments is overwhelming and would detract from the instructors’ ability to teach the courses. For this reason the implementation of writing assignments in the HDE survey at the present time would be counterproductive unless significant support can be found. To date, attempts to locate graduate students from our university, the University of Michigan, and Wayne State University to help grade papers have been unsuccessful, and will most likely continue to be in the future. The best solution would be to immediately hire at least one full-time, tenure-track Ph.D. historian to share the load of these excessively large courses, although it would not solve the problem completely.

#### Curriculum

The Committee recommends the following actions be taken regarding the history and theory curriculum in light of the increased emphasis on writing: (a) English Composition (COM 1103) should be made a prerequisite for HDE 1 in anticipation of more writing in this course in the future; and (b) passing the Writing Proficiency Exam (COM 3000) should be made a prerequisite for all history and theory electives.

End of Report 05.04.09

## College of Arts and Sciences

### *Department of Humanities, Social Sciences and Communication*

#### 2008-2009 Assessment Report

- I. '08-'09 Action Plan
- II. '08-'09 Assessment Activities
- III. '09-'10 Action Plan
- IV. Appendices: (A) HSSC '08-'09 Writing Assessment Report  
(B) WPE Program Review Report

- I. '08-'09 Action Plan
  - HSSC '08-'09 Assessment Initiatives submitted to UAC in Oct. '08
  - 1. Standardization of HSSC writing assessment process
  - 2. Creating online database for storage of assessment data
  - 3. WPE Review
  - 4. Writing Across the Curriculum Initiative
  - 5. Profiles in Writing Study
  - 6. Essay component of English placement exam
  - 7. Core Curriculum Diagnostic Exam
  - 8. Core Curriculum Student Survey
  - 9. Extra-Curricular Events Survey
  - 10. Best Practices in Writing Pedagogy Study

#### University Assessment Assignments

In addition to HSSC's internal assessment efforts, the department was tasked by other University bodies with the following assessment projects:

- 1. HLC Faculty Profile Reviews
- 2. HLC Program Reviews
- 3. Develop assessment plan for leadership program and sort out administrative relationship between HSSC and LDR for assessment purposes
- 4. Evaluate ESL program and address problems caused by changes in funding rules for Saudi students
- 5. Coordinate with AAC/CTL on support services for student writing and faculty writing pedagogy
- 6. Advise on curriculum changes related to writing within Department of Civil Engineering
- 7. Administer CEQS survey to faculty and formulate department response to character education assessment
- 8. Advise on development and application of oral presentation assessment
- 9. Review results and formulate department action plan in response to NSSE survey
- 10. Faculty service on Provost's "College Tour"
- 11. Faculty service as CTL writing workshop presenters
- 12. Faculty service as AAC writing tutors
- 13. Faculty service as WPE scorers
- 14. Faculty service on Foundations of Excellence project
- 15. Faculty service on UAC NSSE subcommittee



## II. '08-'09 Assessment Activities

### 1. Standardization of HSSC writing assessment procedures

Our major effort over the '08-'09 cycle was to develop and implement a single process for assessing all student writing within HSSC. This effort began with a review of the variety of assessment procedures currently in place and the development of a single assessment rubric for the department. The department established a 3-year cycle for assessing student papers from the six writing-intensive courses in the Core Curriculum (2 courses per year, rotating), and a methodology for analyzing the results. [See Appendix (A) below.]

### 2. Core Curriculum Writing Assessment

HSSC implemented its new writing assessment process with papers sampled from Composition and Foundations sections. The results will be analyzed in HSSC's full '08- '09 Assessment Report.

### 3. Creation of Database for HSSC assessment data

HSSC is still working on the creation of a Blackboard site which will act as a storehouse for all assessment-related documents/reports.

### 4. WPE Review

HSSC conducted an extensive review of the Writing Proficiency Exam, including a compilation and analysis of individual test results dating back three years to the origins of the exam. This review overwhelmingly affirmed the rigor and consistency of the scoring of the exams. This review did raise several issues regarding the administration of the exams and the storage of the resulting data. The review and recommendations for reforms were communicated to all faculty members at the university through a presentation given to each college in Feb./March '09 (Provost Vaz's annual 'college tour'.) Several of those recommendations have already been implemented, others are still in progress. [See Appendix (B) below.]

### 5. Profiles in Writing study

One large effort in '08-'09 was directed at developing a method of assessing students' experiences with writing across the university's curriculum. The initial concept was to recruit a focus group of first-year students and hold a series of discussions with them over their entire 4 years at LTU. This project failed due to a lack of student interest.

### 6. Institutional support for 'Writing Across the Curriculum'

In '08-'09, HSSC made a number of efforts to support other departments and colleges in reviewing their writing curriculum. A presentation on Writing Across the Curriculum was given to faculty members in every college. In conjunction with the Center for Teaching and Learning, HSSC writing faculty hosted a day-long workshop on writing pedagogy. HSSC's writing faculty have been involved in a variety of ways in developing and advertising tutoring services available through the Academic Achievement Center. HSSC's assessment representative is working with faculty from several departments on specific curricular changes, developing writing rubrics, and using WPE results to identify students' writing needs in the major programs.

### 7. Core Curriculum Diagnostic Exam

The department devoted considerable time to discussing a standardized exam that could be administered to students at the beginning and end of their Core Curriculum (or beginning and end of

each series with the Core.) No consensus was reached, however, and there appears to be little prospect of one with the current composition of the faculty.

#### 8. HLC Program Reviews

HSSC's chair, assessment representative and program directors have been gathering data to complete the HLC Program Reviews due in December '09.

#### 9. Leadership Program Assessment Plan

In '08-'09 LDR developed a comprehensive set of assessment tools for the Leadership Program. Implementation is beginning this year and should be completed as LDR3001 and LDR4001 come online in the next several years.

#### 10. CEQS Survey and Character Education Assessment

HSSC faculty filled out the CEQS survey, and both the results of the survey and the discussion regarding it demonstrated a largely negative response to a "values" approach to character education assessment. HSSC faculty served on the Character Education Assessment Committee which decided upon the CEQS survey, and are now serving on the new Character Education Assessment Committee which will have to devise a different approach.

### III. '09-'10 Action Plan

1. Core Curriculum writing assessment: analyze '08-'09 data  
Sample and score WM1 and Development papers
2. HLC Program Reviews
3. Implement program assessment plans
4. Writing Across the Curriculum Initiatives
5. E-Portfolio / Blackboard space for HSSC assessment documents

### IV. Appendices

#### (A) HSSC '08-'09 Writing Assessment Report

In '08-'09 HSSC re-evaluated its writing assessment procedures. The result of that evaluation has been the implementation of a substantially new process for evaluating student writing in Core Curriculum courses.

##### Writing assessment rubric

HSSC had developed several rubrics for evaluating student writing over the previous 6-7 years. These rubrics had been developed primarily for particular courses by the faculty who teach those courses. Writing assessment within HSSC was "Balkanized" among the COM, LLT and SSC series.

The first task in HSSC's re-evaluation of its writing assessment procedures, then, was to review the rubrics currently in use and attempt to distill from them a single rubric that could be used across the Core Curriculum. A committee - Dr. Melinda Phillips (HSSC Chair), Dr. Rachel Azima (Coordinator for Masterpieces 1 & 2), Dr. Phil Vogt (Coordinator for Foundations & Development of the American Experience) and Dr. Jason Barrett (HSSC Assessment Representative) – gathered the existing rubrics, created a draft-consolidated rubric, sought comment from their respective constituencies, and finally

submitted the new rubric for the department's consideration in December. After further discussion and modification, the department achieved a consensus on the form and content of the assessment rubric to proceed with a first trial in its application.

HSSC's Writing Assessment Rubric [Attachment 1] sets out three dimensions of college writing: argument, evidence, and mechanics. Within each of those dimensions, the rubric defines three fields of evaluation. Within "Argument," the rubric evaluates "Thesis," "Development of argument through body of essay," and "Counter-arguments anticipated." Within "Evidence," the rubric evaluates "Command of course material," "Relationship between evidence and claims," and "Citations." Within "Mechanics," the rubric evaluates "Style/concision," "Grammar/syntax," and "Paragraphs." For each of these nine fields the rubric provides qualitative criteria that distinguish five levels of competency, corresponding to letter grades: A, B, C, D, and F. Finally, the rubric establishes a 13-point scoring key (0-12) so that scorers may give the numerical equivalent of "plus" or "minus" letter grades.

#### Method for sampling and scoring student work

Prior to the institution of this new assessment process, faculty within each of Core Curriculum courses were responsible for assessing two papers from each student in each of their sections one semester every three years. This division of labor created episodic deluges of assessment responsibilities that faculty generally dreaded and that were difficult to translate into a sustained culture of assessment. A primary goal of the assessment review committee was to remove the 'silos' separating the assessment work of cohorts of faculty and to create a more manageable and regularized workload related to assessment.

To that end, the new assessment process requires every full time faculty member in HSSC to score a packet of twenty papers each spring term. The sample papers are drawn from two Core Curriculum courses each fall term, on the following cycle:

'08-'09	COM1103 Composition	SSC2413 Foundations
'09-'10	LLT1213 Masterpieces 1	SSC2423 Development
'10-'11	LLT1223 Masterpieces 2	Junior/Senior Electives
'11-'12	repeat	

The goal of including every faculty member in scoring papers from every Core Curriculum course required a reasonable limit on the number of papers to be scored (20 papers per cycle.) That quota sets the parameters of the number of papers that can be sampled. In '08- '09, 18 full-time faculty members scoring 20 papers produced 360 scored samples ("score sheets").

A second goal of the review committee was to collect data in a way that permits statistical testing of the validity of the rubric and our scoring methods. To that end, each sample is scored twice and encoded so that the paired-score sheets can be identified and compared. This second goal further limits the sample size. With a maximum of 360 score sheets and every sample scored twice, a maximum of 180 papers may be sampled.

This change from assessing every assignment in the subject courses to setting a maximum sample-lot size based on annual quotas per faculty member requires a methodology for deciding which papers will be assessed from those collected in the subject courses. In Fall '08, 363 papers were collected from 3 sections of COM1103 and three sections of SSC2413. Each section submitted two sets of papers: the first assignment of the semester ("P1") and the last assignment of the semester ("P2"). Due to the neat division between the total collected (363) and the maximum sample-lot size (180), the process administrator (J.

Barrett in '08-'09) simply took every other paper from the stack of collected papers. In future cycles, where the proportion of collected papers to sample papers is not so neat, it will be important randomly to select samples from the collected papers in proportion to the number received from each section and in proportion to the number of P1 and P2 papers.

The papers selected as samples were then encoded: first by redacting all information identifying either the student-author or the course/instructor, and second by recording a digit- series that identifies the paper's origins. The sample papers were then copied and a further code added that identified first or second copy. The 360 sample papers were then sorted into 18 "scorers' packets" of 20 papers, such that each scorer was paired with every other scorer on at least one sample paper. A final set of digits was then added to the papers in each packet assigning a "scorer's #" for that packet. Finally, a "scores" sticker was attached to each paper for scorers to record their scores.

	Term	Course	CRN	P1(A) / P2(B)	Lot#	Copy A / B	Score#
Code:	F08	2413	1221	A	05	A	15

The scorer's packets were distributed to each faculty member in the third week of spring term. The faculty was asked to score their packet of papers and return them to the process administrator by the week following Spring Break (week 9.) The great majority were submitted on time, and the last packet was received by the process administrator in the 12th week of spring term. Both the distribution and the collection of the packets were anonymous. Each faculty member was the only person permitted to see his or her own scorer's #.

The process administrator then entered all of the score sheets into a database and distributed to all faculty members by the last week of the semester. Faculty members were encouraged to review the data over the summer and to arrive at the department retreat the following fall prepared to discuss the major trends observed in the data. The process is continued into fall term '09, then, as the department must both come to a consensus on the meaning of the data, start to address any problems that become apparent from the data, and also collect papers from fall term courses in order to repeat the scoring process in spring term '10.

## Attachment 1: HSSC Writing Assessment Rubric

HSSC Writing Assessment Rubric														
SCORING KEY		12	11	10	9	8	7	6	5	4	3	2	1	0
CATEGORIES		"A"			"B"			"C"			"D"			"F"
ARGUMENT	<b>A</b> Thesis, main idea, interpretation	Insightful, original; complete thesis statement and 'roadmap' for body of paper in introduction			Coherent, clear and complete thesis statement, but unambitious; restates consensus in class discussion			Thesis statement addresses assigned topic, but overly general, noncommittal, or restates topic as an assertion			Thesis statement vague, not clearly relevant to assignment			No thesis statement
	<b>B</b> Development of argument through body	Body logically unfolds claims in thesis, with increasing conceptual nuance; Skillful use of concession and qualification			Body logically unfolds central claims in thesis, but lacks nuance, concessions or qualifications			Body sustains theme/topic of thesis, but not in an analytically sequential manner			Substantial portions of argument of questionable relevance to thesis			Arguments irrelevant to thesis
	<b>C</b> Counter-arguments anticipated	Takes 'other side' into account and gives strong reasons for author's approach.			Skillful but inconsistent consideration of reasonable counter-arguments			Counter-arguments introduced, but issues unaddressed or unresolved			Counter-arguments undermine thesis			No counter-arguments acknowledged
EVIDENCE	<b>D</b> Command of course material	Demonstrates mastery; material subjected to critical analysis			Demonstrates proficiency; identifies and accurately explains relevant passages			Demonstrates competence; college-level interpretation that does no violence to the text			Coherent, but excessively vague or general			Confused about basic issues
	<b>E</b> Relation between evidence and claims	Each primary claim and many secondary claims supported by direct textual evidence			Each primary claim supported by plausible and relevant examples from texts			Textual evidence mixed with opinion			Relies primarily on opinion			Relies nearly exclusively on opinion
	<b>F</b> Citation	All necessary citations provided, all in proper format (MLA/APA)			Most necessary citations provided, all in proper format			Inconsistent citations, all from valid sources			Insufficient citations			Few or no citations
MECHANICS	<b>G</b> Concision / Style	Cannot be substantially cut; succinct, direct, active prose			Largely free of errors of style; some colloquialisms, but little repetition or redundancy, few passive constructions			Avoids errors of style that impair meaning, but prose is colloquial, repetitive, or passive			Essay could be substantially shortened; mechanical errors impair meaning			Majority of text is superfluous
	<b>H</b> Grammar / syntax	No significant, basic errors			Few and incidental grammar and syntax errors: does not repeat same error			Moderate frequency of errors, or same errors repeated, but meaning unimpaired			Mechanical errors impair meaning			Pervasive mechanical errors
	<b>I</b> Paragraphs	Paragraphs organized around discrete main ideas in coherent sequence; effective transitions			Paragraphs organized around discrete main ideas in coherent sequence, but weak transitions			Paragraphs organized around discrete main ideas, but problems with their internal construction and sequencing			Some paragraphs have multiple main ideas or incomplete ideas; transitions inferred rather than stated			Text arbitrarily sectioned into paragraphs

## (B) WPE Program Review Report

## HSSC Report on 2008-09 Assessment of WPE program

1. Call for assessment of WPE program
2. Structure and scoring of WPE
3. Standards, goals and ongoing problems with implementation
4. Record keeping and data storage
5. Data analysis:
  - a. Gross figures
  - b. Scoring consistency
  - c. Student performance
6. Conclusions, recommendations & follow-up
7. Attachments

## 1. Call for assessment of WPE program

Two reports on LTU students' writing skills were delivered at LTU's 2008 Assessment Day.

One report on papers sampled from junior/senior courses across campus concluded that LTU students' writing was overwhelmingly abysmal: more than three-quarters of the papers sampled for this assessment

exercise failed the standards set. Another report on the Writing Proficiency Exam (COM3000) showed that more than three-quarters of LTU students were passing the exam on their first try and the great majority of the remainder passed on their second attempt. The conflict between these reports produced a lively debate among faculty. Two possible implications of the reports seemed apparent: either the WPE was failing to enforce rigorous standards or the assessment of the junior/senior papers was fundamentally flawed.

The methodology adopted for assessing the Junior/Senior papers complicated this debate. The committee assigned this task was comprised of faculty from each college and adopted HSSC's "Guidelines for Writing Papers" as their assessment rubric. Yet in critical ways, this committee applied the Guidelines differently than has been customary within HSSC: by deducting 1/3 grade for each instance of grammar/construction errors listed on the "Banned- Error List" rather than for each type of error committed and by applying the same absolute- quantitative scale to papers of varying lengths. More fundamentally, the baseline scores described in the Guidelines require the expertise of the instructors in each course to evaluate. It is impossible for external evaluators to know whether the content in a sample paper is original, critical, pedestrian etc. HSSC did not write the Guidelines as an independent assessment device. They were written to encourage uniformity of standards in grading writing across campus. Finally, the committee's report did not distinguish the colleges or programs from which they had gathered papers. Their data did not tell us whether student writing was better or worse in HSSC, Engineering, Architecture, Management etc. courses.

The other side of the debate suffered from the lack of a systematic review of the WPE's methodology and impact upon student writing. HSSC developed the WPE during the '04-'05 academic year as a major response to criticisms from different accreditation visitors concerning LTU's investment in students' writing. The exam was first implemented in fall term 2005.

From fall term 2005 through spring term 2009, the WPE had been administered more than 1200 times to more than 1000 students. Yet no attempt had been made to assess the validity and utility of the exam beyond annual reports on students' pass/fail rates in COM3000.

In response to this discussion, the Provost asked HSSC to conduct a more thorough review of the WPE. Dr. Jason Barrett, HSSC's Assessment Coordinator, conducted the review with the cooperation of Joyce Munro, the WPE Program Director, during spring term 2009. This report contains Dr. Barrett's findings, recommendations, and summary of actions taken on those recommendations from the end of spring term 2009 to the writing of this report in November 2009.

## 2. Structure and scoring of WPE

The WPE Program's FAQ handout (Attachment 1) describes in detail the format of the exam and the registration requirements for COM3000. The WPE requires students to write a timed, impromptu, persuasive essay in response to one of several "prompts" in a proctored-exam setting (Attachment 2: Sample Prompt). The WPE is required for all LTU undergraduates, and students are encouraged to take it after completing 60 and before completing 80 credit hours.

The exam proctors forward electronic copies of each exam to two WPE scorers who assess the essays with the WPE Grading Rubric (Attachment 3). The WPE Grading Rubric applies a 1- 5 point scale to six categories of evaluation: ideas/content, organization, voice, word choice, sentence structure, and writing conventions. Scorers are encouraged but not required to enter comments along with a numeric score. Scorers are required to make a recommendation for pass or fail. A total score of 21 has been the customary – but not uniformly applied – minimum for receiving a "pass" recommendation.

Essays with passing recommendations from both scorers receive a CR on their transcript for COM3000. Essays with failing recommendations from both scorers receive an NC (and must repeat COM3000.) Essays with split recommendations from scorers are referred to a third reader– in most instances Joyce Munro – who makes a final determination.

Students who fail the WPE may request their score sheets and consult with writing tutors about the scorers' comments on their essays. The WPE Program offers regularly scheduled workshops to prepare students for the exam (Attachment 4: WPE Orientation Workshop).

Students failing COM3000 twice must enroll in COM3102, a two-credit remedial-writing course. The final exam in COM3102 is to retake the WPE.

WPE scorers are typically LTU writing instructors recruited by Joyce Munro on an ad hoc basis. Scorers are paid by the WPE Program \$5 for each essay scored. Recruitment of scorers has been a recurring problem. More than one-dozen individuals have served as WPE scorers since its implementation, but fewer than half have scored the great majority of exams.

### 3. Standards, goals and ongoing problems with implementation

The WPE was originally conceived as a check that students had reached a basic writing competency by the time they completed their Core Curriculum courses. The target of students' taking the exam in their fifth semester reflected the common practice across campus of the Core Curriculum consuming most majors' first two years of study. The standards set were purposefully modest. The goal was to "catch" students who had not reached a basic competency and make them do remedial work (largely independent of formal coursework) before getting to the advanced stages of their major programs. The WPE's standards were not set to insure that every LTU student had attained uniform proficiency or excellence, or to test their ability to write in the specific idiom/format of their major field. These parameters arose out of active debate over a variety of competing concerns: whether the exam should earn credit hours, whether students should receive regular grades rather than CR/NC marks, whether failure on the WPE would block students from advancing in their major programs, the amount of resources available to staff the program and pay scorers etc.

A number of problems have developed which have inhibited the WPE from reaching its initial goal. The structure of the Banner registration system is such that students cannot be compelled to take the WPE when they reach 60-80 credit hours (they cannot be prevented from registering for more than 80 credit hours without having taken COM3000.) The sequencing of the WPE within students' programs can only be affected by making COM3000 a prerequisite to enrollment in upper level courses. The Provost and the Assessment Committee have repeatedly urged colleges and departments to select a 3000- or 4000-level course required of all their majors and make COM3000 a prerequisite for it. As of fall term 2009, only HSSC has done so: all junior/ senior electives in HSSC have COM3000 as a prerequisite.

This context has led students to perceive the WPE as a kind of entrance exam to their junior/ senior elective in HSSC, and both as final hurdles to graduation. This perception has produced at least two dysfunctions in administering the exam. First, registration issues in HSSC's junior/ senior electives have increased exponentially as students have increasingly "pushed the envelope" of how late they can take the WPE in their 7th semester (or even the beginning of their 8th semester) in order to register for their HSSC elective in their 8th semester. The threat of not being able to register for their HSSC elective in their final semester – and hence having to push their graduation date back – has led to a variety of stratagems by students and their advisors to get around the WPE prerequisite for HSSC's junior/ senior electives. Resolving these

registration issues has consumed an inordinate – and seemingly ever-increasing – amount of HSSC faculty's time.

A second dysfunction is more critical to the WPE's mission. The WPE was designed to assess the competence of the writing pedagogy of the Core Curriculum, and to ensure that transfer students who were allowed exemptions from Core courses were held to the same standard of writing competence. When students take the assessment device 12-18 months after their last Core course (and perhaps longer since either Composition or Technical and Professional Communications – the two writing-specific courses in the Core), it would seem to diminish greatly the precision of the instrument. More fundamentally, the trend of students' pushing the WPE and HSSC elective into their final year has exacerbated the perception that HSSC's curriculum is a sufficient preparation for the preponderance of our students to become professional-caliber writers. It is unrealistic to believe that one two-hour exam and one 3-credit-hour Literature or Social Science course is a sufficient writing regimen for the final two-years of our students' education. HSSC's and CTL's "Writing Across the Curriculum" project has for several years been urging the major programs to implement substantive writing pedagogy in their courses. Unfortunately, the WPE – which was intended to do just the opposite – has become in some instances an excuse not to make investments in the third- and fourth-year writing curriculum.

#### 4. Data collection and storage

The major difficulty in conducting a detailed assessment of the WPE program was the state of the program's record keeping at the time this review began. Banner contains a complete list of students who had enrolled in COM3000 and the mark received, and the WPE Program had preserved a mass of individual electronic score-sheet files and essays. But very little progress had been made in collating that material or accessing students' biographical data from IR.

Sorting through the extant materials and creating a usable database was a principal task for this review to go forward. The analysis which follows is based on the materials submitted by the WPE Program as of February 1, 2009. The data is incomplete. Banner reported 1246 students having received an NC or CR mark for COM3000 through fall term 2008. The database organized for this review contains a complete record (WPE essay and two (or three if refereed) score sheets) for 535 of those students, an incomplete record for 248 of them, and no records for 463 of them.

A substantial number of additional records were recovered after this review had gone forward. They were integrated into the database for archive purposes, but are not reflected in the analysis that follows. Since this review was completed, the WPE Program has implemented major reforms in its record-keeping practices. (See recommendations and actions-taken section below.)

#### 5. Data analysis

##### A Gross figures

Graph 1 displays the numbers and proportions of NC and CR grades reported for COM3000 by term from the WPE's implementation through fall term 2008.

Graph 2 displays the numbers and proportions of NC and CR grades for COM3000, and compares the rates for first-time test takers and students taking the exam for the second or more time.

Taken together, these figures indicate that the WPE scoring process has been consistent from semester to semester in its passing/failure rate. The extremes are 72% of exams receiving a CR in 200620 to 89% of exams receiving a CR in 200730. The other semesters, however, come much closer to the overall mean of



an 82% passing rate. Graph 2 indicates that very close to the same rates apply to students taking the exam for a second or third time. This evidence supports the tutoring and workshop efforts of the WPE to work with failing students to bring them up to speed.

#### 1. Data analysis

##### b. Scoring consistency

Graph 3 and Graph 4 attempt to measure the reliability of the WPE's scoring methodology. Graph 3 pairs the scores given in each category of evaluation on the 535 exams for which we possess at least two score sheets, and measures the disparity within each pair (6420 individual scores in 3210 pairs). "0" indicates that the scorers gave the same score, "1" indicates a difference of 1 point in the scores given, etc. Graph 4 illustrates the distribution of scores within each score category: how often scorers gave 5s, 4s, 3s, etc.

This data indicates a fairly-limited range of scores given but also a very high rate of consistency among the scorers. More than 85% of the time, scorers gave a "3," "4," or "5" in each category. And nearly 85% of the time, each of the two scorers for one exam gave either the same score or scores that were 1-point apart. Equally significant, the data shows a high rate of latitudinal consistency across the categories of evaluation and longitudinal consistency across semesters.

#### 5. Data analysis

##### c. Student performance

Graph 5 illustrates the distribution of total scores on the WPE by academic cycle and indicates the approximate ranges for pass, fail, and third readings. The total score has a range of 6-30 points (six categories scored 1-5 points.) The customary threshold for a scorer's passing recommendation is 21 points. The final CR/NC mark is determined by the congruence or incongruence of two or more scorer evaluations.

This data supports a common-sense observation about LTU students' writing skills. As a cohort, LTU students display a wide range of skills. The largest group ranges from competent to proficient (21-25 points), and smaller groups both display mastery (26-30 points) and struggle with competence (15-20 points.) Determining benchmarks for success is made difficult by the implementation issues noted above. If the WPE scores illustrated in Graph 5 represent the skill set of students just completing their Core Curriculum courses, we are likely to be more satisfied with the results than if those scores represent the skill set of students preparing to graduate. And without a comparable, baseline measurement of students' skills upon entering LTU, it will not be possible to measure with precision the overall effect of the writing pedagogy in the Core Curriculum.

What does seem clear is that the WPE scorers are reporting with far more subtlety on the specific skills of each student than LTU's administrative structures can record and act upon. This perspective underscores the insufficiency of current practices which depend upon the CR mark in COM3000 certifying any aspirational standards. A wide range of writing skills can earn a CR in COM3000. CR sets a minimal acceptable level.

#### 6. Conclusions, recommendations and follow-up actions

The material examined for this program review strongly indicates that the WPE has been administered efficiently and consistently. Writing of similar quality is highly likely to receive similar scores across samples and over time. The WPE has been very effective at its immediate mission: to gather and process large numbers of writing samples in a short amount of time with limited resources.

These parameters have also limited the WPE's utility for resolving the larger problem of the quality of LTU students' writing skills. The WPE has not developed into a reliable measurement of the impact of the Core Curriculum's writing pedagogy, nor has it been integrated effectively into major programs' writing curriculums. The WPE scorers are delivering more information on students' writing skills than the University is currently able or willing to use.

The recommendations developed based upon this program review are primarily designed to help bridge the gap between the work that the WPE is doing and the University's goal to improve student writing. Jason Barrett presented these recommendations to the faculty of each college during the Provost's spring '09 "College Tour." The following list indicates actions that have been taken upon the recommendations from their presentation in the College Tour to the writing of this report.

## 7. Recommendations:

A. Reform the WPE program's record-processing and archiving practices. All out-standing records should be entered into the archive created for this review. Going forward, the WPE program should work towards placing as much of the scoring and archiving process online as possible. In particular, a solution needs to be found for importing the student bio data in Banner (major code, transfer/FTIAC status, credit-hours when enrolled in COM3000 etc.) into the WPE scores archive. This information would permit a far more substantial analysis of the areas within LTU's curriculum that are doing the most and the least good for students' writing skills.

Actions taken: Over the '09 summer, Joyce Munro searched the WPE records and recovered scores of additional scoresheets. This data was added to the scores archive. The archive remains far from complete, going back to the first exams administered, but it is now as complete as it is likely ever to be. Joyce Munro implemented a new process for scorers to report their scores. Each scorer now receives one Excel file for each CRN of COM3000 (CRN = one test-taking session, typically with 10-25 students.) That file contains entries for each exam, with columns for numeric scores and columns for comments. These files can now be collated easily to maintain a real-time archive of all the types of data collected for this review. IR has provided reports with students' bio data. Jason Barrett has begun to integrate that material into the archive. But this process remains less than ideal because it depends upon manually collating the lists.

B. Increase compensation for scorers. Recruiting faculty members to serve as WPE scorers has been a problem since the WPE's inception. The current compensation scheme - \$5 per exam scored - creates a minimal incentive for scorers to participate in the WPE's most basic function: to process a large number of exams in a small amount of time. Two advantages could be realized by increasing the incentive for scorers. First, a larger pool of scorers could develop which would allow the program to rely solely upon writing instructors as scorers and also broaden the sampling-base for evaluating the WPE's scoring methodology. Second and more important, a greater incentive for scorers would encourage them (or permit as a reasonable requirement) to write more substantive commentary on the samples' strengths and weaknesses. Currently, scorers are incentivized to record a score and jot a note or two. A more substantive commentary by scorers would both help students who fail to understand why they failed and also allow major programs to use WPE results in their advising (see recommendation D below.)

An increased compensation scheme might take the form of more dollars per exam scored. It might also take the form of increasing the "credit" for faculty members' service obligations. Getting out of a committee assignment or recruitment obligation could be as valuable as additional dollars.

Actions taken: The Provost has made no response to this recommendation.

C. Major programs should make COM3000 a prerequisite for one 3000- or 4000- level course required for all their majors. A major obstacle to the WPE fulfilling its intended mission, as discussed above, is the common practice of students waiting until their last year to take it. Several attempts to compel students to take the exam at 60-80 credit hours through Banner have failed. The only apparent remedy is for the major programs to require the WPE within their curriculum.

Actions taken: As of September 2009, only HSSC has made COM3000 a prerequisite for any course. All 3000- and 4000- level LLT and SSC electives have COM3000 as a prerequisite.

D. Major programs should use WPE scores for student advising. Once the WPE program integrates its record-processing, it should be possible to deliver regular reports to the major programs with their students' score sheets and data showing program averages, University averages etc. Currently, major programs only have access to the CR/NC mark in Banner. As noted above, a CR covers a wide range of writing skills. If major programs had the specific scores and commentary for each of their students, they might advise those who "barely passed" to attend AAC writing workshops and/or reward students who scored in the highest percentiles. This type of activity would dramatically increase students' sense of the WPE's importance and the value their program places on writing skills.

Actions taken: Over the '09 summer, Jason Barrett began integrating the IR student-bio data with the updated WPE archive in order to produce sample-reports for the major programs on their students' WPE performance by the start of fall term. An issue was raised at the University Assessment Committee's pre-semester retreat concerning the consequences of distinguishing between colleges and programs in our assessment reports. The department assessment representatives on the committee unanimously declined to receive reports on their students' WPE performance.

## Writing Proficiency Exam Frequently Asked Questions

### **What is the Writing Proficiency Exam?**

COM 3000, the Writing Proficiency Examination, is a graduation requirement for all LTU undergraduate students. It's a timed (two and a half hours) writing exam during which you write an essay of at least three double-spaced pages (at least 750 words) in response to one of several writing prompts provided at the exam. You write the essay on a laptop computers provided for that purpose.

### **Who must take the exam?**

The WPE is an "exit" examination, meaning that all undergraduate students must pass it in order to graduate from LTU. It is not an entrance or placement examination. The exam is required of all students, including transfer students. It cannot be waived. However, LTU undergraduate students who had already earned 80 credits (including transfer credits) before the Fall 2005 semester are exempt from this graduation requirement.

### **Why must I take the exam?**

The University expects students always to present well-written assignments, and, according to President Lewis Walker, the University wants "students to understand that good writing skills are an integral part of good communication for professionals in any field of expertise." The University also uses the results of the WPE to assess the effectiveness of writing instruction at LTU.

### **When should I take the exam?**

We recommend that students take the exam after they have earned 60 credit hours and before they have earned 80 credit hours. Banner will block registration for Junior/Senior Humanities electives for any student who hasn't completed the WPE requirement. We urge you to take the WPE before you earn 80 credits. Do not wait until you have almost earned enough credits to graduate before you take the WPE!

### **How do I register for the exam?**

You register for COM 3000 on Banner, as you do for all your classes. The registration fee is \$25.00. The exam is given every month except in December. (Note: If the WPE is the only course for which you register in a semester, Banner will add the normal registration fee of \$115.00. Please contact the Registrar's Office [enrollmentservices@ltu.edu](mailto:enrollmentservices@ltu.edu), 248-204-2280, or go to the One-Stop Center on the third level of the Taubman Student Services Building and explain your situation. The Registrar's Office will remove the \$115.00 registration fee from your account when the drop/add period ends).

### **Where is the exam administered?**

The location for Fall 2008 WPEs is to be announced. Locations will be announced on Blackboard before the exam and posted on the door to C201 on the day of the exam.

### **When is the WPE scheduled?**

WPEs are scheduled every month except July and December, on the third Friday of the month. Exams are held at two different time slots, 9:00 AM -11:30 PM and 1:00-3:30 PM. Students will be expected to write essays of a minimum 750 words, or at least three double-spaced pages.

### **What if my schedule conflicts with the times the WPE is offered?**

If the WPE is offered at times that conflict with your schedule, contact the Director to schedule a session at a time you can make it. You still must register for an upcoming section of COM 3000 so that your results can be posted to your transcript.

### **I'm entitled to accommodations under the ADA. How do I notify the WPE Director?**

Contact Katherine Charbeneau at 248-204-4119 or [charbeneau@ltu.edu](mailto:charbeneau@ltu.edu) or go to her office at C405 in the A. Alfred Taubman Student Services Center. Tell her that you are registered for COM 3000. Ask her to contact the WPE Director in writing with the accommodations to which you are entitled. The Director will contact you to set up your WPE at a time and under conditions that are in compliance with the ADA.

## Attachment 1: WPE FAQ Handout – p.2

**What can I do to prepare for the exam?**

We offer a free, one-hour WPE Workshop every month the WPE is administered. The Workshop will tell you what to expect on the exam. In Fall 2008, it will meet on 8/11, 9/15, 10/13, and 11/17 in C201.

We also offer a free, two-and-a-half-hour workshop every month the WPE is administered to give you practice in exam and writing strategies. It is offered from 2:00-4:30 PM the Friday before each scheduled examination 8/8, 9/12, 10/10 and 11/14 in C201.

Some problems with writing cannot be addressed in an afternoon. If you have difficulty organizing, developing, supporting, beginning or ending essays, and especially if you have problems with sentence structure and fluency, you can also attend free weekly Writing Practice seminars on Thursdays from 3:00-4:30 PM in M212, starting on 9/11/08 and continuing through 11/20/08. Plan to attend regularly most or all of the weekly sessions for maximum benefit. The text for Writing Practice is Pam Altman, et al., *Sentence Combining Workbook*, 2<sup>nd</sup> Ed. Heinle, 2007, ISBN 978-1413019773, available at the LTU Bookstore and online.

**When will I find out how I did on the WPE?**

Each essay is read twice. Readers are LTU faculty members who also teach composition. If both readers agree on whether the exam passes (CR), you pass. If both readers agree that the exam does not pass (NC), you fail. If the two readers disagree on whether your exam should pass or fail, the exam is given to a third reader, who decides whether the exam should pass or fail. This process is usually completed about two weeks after the date of the exam. Your score is then posted on Banner under the section of COM 3000 for which you registered. If you haven't received your results three weeks after the date you took the exam, please contact the Director at [munro@ltu.edu](mailto:munro@ltu.edu).

**Can I register for my Humanities Junior/Senior Elective after I pass the WPE?**

Yes. Once you pass the WPE, you will be able to register for the electives. Plan to complete your WPE requirement before you take the Humanities Junior/Senior Elective.

**What happens if I fail the WPE?**

If you fail the WPE on your first try, you can re-register for it. You will have to pay the \$25.00 registration fee again. Consider attending the three-hour workshop or even a semester of free Writing Practice sessions before retaking the exam.

**What happens if I fail the WPE twice?**

If you fail the WPE twice, you must register for COM 3102, a two-credit writing course specially designed to improve students' writing ability and prepare them to pass the WPE. The final exam for COM 3102 is taking the WPE. COM 3102 will be offered in Fall 2008 on T from 3:00- 5:40 PM.

**What happens if I fail COM 3102 (Writing Workshop)?**

If you fail COM 3102, you will not be able to graduate. This is why we are offering preparation workshops, Writing Practice, and the Writing Workshop. We want every LTU graduate to write proficiently.

## Attachment 2: Sample WPE Essay Prompt

**Writing Proficiency Examination 21 August 2009****1:00 - 3:30 PM****COM 3000, CRN 1703**

Select one of the following prompts. Respond to the prompt you choose by writing a well- developed and organized essay of **at least 750 words or three pages in length**. Please double space your essay. Don't forget to give your essay an appropriate title.

1. Earlier this year, General Motors and Segway announced a joint venture to produce and sell the P.U.M.A. (for Personal Urban Mobility and Accessibility). It's not an automobile, and it's not a golf cart. Do you think this vehicle will gain any traction in the market? Explain why or why not.

[T]he P.U.M.A., a joint project with Segway, the New Hampshire-based creator of self-balancing two- wheel scooters, is quite different. Think of a larger, two-passenger, sit-down version of the Segway PT, with two gyroscopically balanced wheels. The prototype has minimal bodywork, but podlike enclosures (which look like computer mice on wheels) are imagined for production. If it gets that far.

If all this conjures visions of a rickshaw, well, the prototype does somewhat resemble one. Larry Burns, G.M.'s vice president for research and development and strategic planning, imagines Singapore, which has rickshaws, as one possible early market. The P.U.M.A., which will be displayed at the [New York International Auto Show](#) (which opens to the public on Friday), is an electric vehicle powered by lithium-ion batteries. James D. Norrod, the president and chief executive of Segway, says it has a 35-mile range and 35 m.p.h. top speed. A three-hour charge costs, not surprisingly, 35 cents. It is, in essence, a neighborhood electric vehicle, or N.E.V., whose limited speed keeps it off highways (and, in most states, off roads with speed limits over 35).

The P.U.M.A., which will be displayed at the [New York International Auto Show](#) (which opens to the public on 4-24-09), is an electric vehicle powered by lithium-ion batteries. James D. Norrod, the president and chief executive of Segway, says it has a 35-mile range and 35 m.p.h. top speed. A three- hour charge costs, not surprisingly, 35 cents. It is, in essence, a neighborhood electric vehicle, or N.E.V., whose limited speed keeps it off highways (and, in most states, off roads with speed limits over 35).

## Attachment 3: WPE Grading Rubric

	<b>5 (highest)</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
<b>Ideas/ Content</b>	Clear, focused, and interesting. Holds the reader's attention. Relevant detail enriches the central idea.	Clear and focused, but not as interesting as a top-scoring paper. Support could be stronger.	Clear and focused, though may not be captivating. Support is attempted but may be limited or out of balance with main ideas.	May have focus but lacks clarity or changes mid-paper. Details may not directly support the main ideas.	The paper lacks a central idea or purpose or forces the reader to make inferences based on very sketchy details.
<b>Organization</b>	Organization enhances the central idea or theme. The structure is compelling, moving the reader through the text.	The organization is clear but perhaps formulaic.	The reader can readily follow what's being said, but the overall organization may sometimes be ineffective or too obvious.	At times, the reader has difficulty following the ideas because of lapses in organization.	Organization is haphazard and disjointed. The writing lacks direction, with ideas, details, or events strung together helter-skelter.
<b>Voice</b>	The writer speaks directly to the reader in a way that is individualistic and engaged. Clearly the writer is involved and is writing to be read.	The reader senses the person behind the words. It is engaging but not as expressive as a top-scoring essay.	The writer seems sincere but not fully involved in the topic. The result is pleasant, acceptable, sometimes even personable, but not compelling.	Voice is inconsistent. At times the writer seems engaged in the topic, and at other times, not.	The writer seems indifferent, uninvolved, or dispassionate. The writing is flat, lifeless, stiff, or mechanical. It may be overly technical or jargonistic.
<b>Word Choice</b>	Words convey the intended message in an interesting, precise, and natural way. The writing is full and rich, yet concise.	Writer shows a competent command of diction. Words are sometimes carefully chosen.	The language is quite ordinary, but it does convey the message. Often the writer settles for what's easy, producing a "generic" paper.	For the most part, word choice is sufficient to convey the message, but at times choices are incorrect.	Vocabulary is limited and so vague that only general message comes through. Writer gropes for words to convey meaning.
<b>Sentence Structure</b>	Writing has an easy flow and rhythm. Sentences are well built, with strong, varied structure that makes for expressive oral reading.	Sentences are correct and varied but not carefully constructed to showcase the meaning.	Sentences are mechanical rather than fluid, lacking rhythm or grace. Some awkward constructions force the reader to slow down or reread.	Lapses in correct sentence structure are beginning to impede the readers understanding of the text.	The paper is difficult to follow or read aloud. Sentences tend to be choppy, incomplete, rambling, irregular, or just very awkward.
<b>Writing Conventions</b>	Conventions are used effectively to enhance meaning. Errors so minor that the reader can easily skim over them.	Competent command of language, some errors keep this essay from being a top-scoring essay.	Writing convention errors begin to impair readability. Errors do not block meaning but tend to be distracting.	Errors in writing conventions begin to impede meaning.	Numerous errors in conventions repeatedly distract the reader and make the text difficult to read.

## Attachment 4: WPE Orientation Workshop

**Orientation Workshop for the Writing Proficiency Examination (COM 3000)**

1. What is good writing?
2. What the readers are looking for, and how they score your essay: Six Traits of Good Writing—Rubric
3. Understanding the Writing Prompts (5-10 minutes)
  - a. Five Prompt Analysis Questions
  - b. Rhetorical Analysis of Prompt Worksheets
  - c. Sample Prompts for Analysis
  - d. Spend time analyzing prompts before you go further (5 minutes).
4. Brainstorming, or, You Know More Than You Think You Do! (15-20 minutes)
  - a. Different techniques: freewriting, listing, clustering/mind mapping/journalists' questions, etc.
  - b. Practicing mind mapping
  - c. Sample Prompt #1
  - d. Mind mapping sheets
  - e. Spend time developing your ideas before you start to write (15-20 minutes).
5. Organizing your essay (10-15 minutes)
  - a. Spend time organizing your ideas before you start to write (10-15 minutes).
  - b. Use the T-Chart as a simple way to organize your ideas: Two-Column Notes Using Prompt
  - c. Start with a thesis statement, organize your ideas into logical supporting key points, and develop supporting evidence for each supporting argument.
6. Writing the essay (90-120 minutes)
  - a. Get the words on paper; don't agonize over wording
  - b. Be sure to include specific detail, examples, and other information to develop your ideas. This makes your essay more interesting to the readers and keeps it from being "generic" or vague. This is where your brainstorming and organization will really save you writing time.
  - c. Don't put several ideas into one paragraph—develop each idea in its own paragraph; you will probably have 7-10 paragraphs total.
7. Revising, Editing and Proofreading your essay (10-15 minutes)
  - a. Save 10-15 minutes before the end of the examination to revise, edit and proofread your essay.
  - b. Revising takes a new "look" at what you've written: are you logical, consistent, and did you really say what you meant to say? Do you have another example to clarify an undeveloped point? Do you have your points organized in a way that makes sense to you? Revising is looking at the "Big Picture."
  - c. Editing makes word choices, ideas, sentences, and paragraphs clearer and more engaging.
  - d. Proofreading makes your final draft free from error (spelling, punctuation, capitalization, checking for omitted or doubled words, lack of word endings, etc). Proofread to catch the "picky stuff."



***Department of Mathematics and Computer Science***  
**2008-09 Assessment Report**

Program Educational Objectives, Outcomes, and Accreditation Status

There is no professional accreditation for any of the programs offered by the department. The department's programs are accredited by the Higher Learning Commission of the North Central Association, as a part of the university's overall accreditation.

The objectives listed below are in place during the 2008-2009 academic year. They have been revised during this academic year to clarify them and to bring them closer to ABET wording. Also, there is now a separate set of objectives for the mathematics program and one for the computer science and joint mathematics /computer science major, rather than a single set of objectives for all programs and a set of educational goals that applies to students in the Master of Science in Computer Science program.

There is a set of educational objectives for the Mathematics Core curriculum that applies to all Lawrence Technological University students, and set of educational goals that applies to students in the Master of Science in Computer Science program.

A plan to assess each program against its objectives has been developed during the year as well. That plan subsumes the previous assessment plan. Assessment is also done in the Developmental Mathematics program as well.

Educational Goals for Bachelor of Science in Computer Science and Bachelor of Science in Mathematics and Computer Science

All Bachelor of Science in Computer Science and Bachelor of Science in Mathematics and Computer Science graduates will be able to:

1. Apply knowledge of computing and mathematics appropriate to the discipline
2. Analyze a problem, and identify and define the computing requirements appropriate to its solution.
3. Design, implement, and evaluate a computer-based system, process, component, or program to meet its specified requirements.
4. Function effectively on teams to accomplish a common goal.
5. Understand professional, ethical, legal, security and societal issues and responsibilities.
6. Plan, create and integrate oral and written communication of [mathematical and algorithmic ideas] effectively to audiences having a range of technical understanding.
7. Analyze the local and global impact of computing on individuals, organizations, and society.
8. Recognize the need for and an ability to engage in continuing professional development [and learn new technologies] and adapt to changes in the field.
9. Apply current techniques, skills, and tools necessary for computing practice.
10. Secure employment and/or attend graduate school in their field, drawing on their experiences, both within and outside the major to become responsible citizens and effective professionals.
11. Demonstrate complete understanding of a computer language ((syntax, semantics and terminology), develop and debug complex code.

Educational Goals for Master of Science in Computer Science

All Master of Science in Computer Science graduates will:

1. Display a thorough understanding of the theoretical concepts and practical uses of computer science in two concentrations.

2. Be lifelong learners who are able to master new topics required to understand and synthesize solutions to novel problems, based on their technical knowledge of computer science and their ability to think critically
3. Demonstrate a sufficient depth of knowledge in a substantive area of computer science to pursue advanced practical work in industry  
Plan, create and integrate oral and written communication of [mathematical and algorithmic ideas] effectively to audiences having a range of technical understanding.
4. Formulate and analyze technical requirements for new or existing projects

#### Educational Goals for Bachelor of Science in Mathematics

All Bachelor of Science in Mathematics graduates will be able to:

1. An ability to apply knowledge of mathematics appropriate to a problem.
2. An ability to analyze a problem, and identify and define the mathematical techniques appropriate to its solution.
3. An ability to design, implement, and evaluate a mathematical model that satisfies specified requirements.
4. An ability to function effectively on teams to accomplish a common goal, including performing leadership tasks.
5. An understanding of professional, ethical, legal, security and social issues and responsibilities.
6. An ability to communicate mathematical ideas and models effectively to a range of audiences both orally and in written form.
7. An ability to analyze the local and global impact of models on individuals, organizations, and society.
8. Recognition of the need for and an ability to engage in life-long learning, continuing professional development and adapt to changes in the field.
9. An ability to use current and established techniques, skills, and tools necessary for applying mathematics.
10. Be able to secure employment and/or attend graduate school in mathematics or any field based on mathematics, drawing on their experiences, both within and outside the major to become responsible citizens and effective professionals.

#### Educational Objectives for Mathematics Core (University-Wide)

All students will:

1. be placed in a mathematics course corresponding to their demonstrated skill level
2. possess mathematical problem-solving skills applicable to living in a global society
3. be able to synthesize and analyze information in applied contexts
4. be able to communicate ideas in mathematics both orally and in written form
5. be able to learn new technologies
6. be able to apply mathematical principles within their chosen discipline and as responsible citizens and effective professionals
7. be able to use and understand the use of symbolic and graphical techniques within their discipline

#### Assessment Activities and Assessment Results

1. Assessment of University Educational Goals During the 07 – 08 academic year, the following University Educational Goals were assessed:
  - a. For the Bachelor of Science in Computer Science and Bachelor of Science in Mathematics and Computer Science, University Educational Goal I.1, “Graduates will demonstrate knowledge, and expertise in applying this knowledge, in their fields.” is supported by program goal 1, “Apply knowledge

of computing and mathematics appropriate to the discipline”. The department assessed the performance of students in MCS4613 Networks and MCS4633 Operating Systems.

b. For the Bachelor of Science in Computer Science and Bachelor of Science in Mathematics and Computer Science, the first half of University Educational Goal II.4 “Graduates will demonstrate competence in mathematics and in the use of the scientific method and laboratory technique” is supported by the assessment of the University Mathematics core.

## 2. Assessment of educational goals for the University Mathematics Core

a. Assessment of the educational goals for the University Mathematics Core was done by administration of a common final for Calculus 2 and Math Analysis 2. Loop-closing was done for the Calculus 2 objectives. During the previous year, faculty deemed the scores too low and hypothesized that the explanation was the structure of the Calculus 2 course itself. The course contains two major topics, integration and series. The hypothesis is that the course focuses exclusively on series for the last part of the course, and students have lost proficiency in integration due to the blocking effect. The course topics was re-ordered to validate or invalidate the hypothesis. The results did not support the hypothesis.

3. Assessment of educational goals for the Developmental Mathematics program. The Developmental Mathematics program is assessed annually to determine how accurately the placement exam functions as a predictor of student performance and how well the program prepares students for the undergraduate curriculum. Assessment is based on student performance on a common final exam. Data were collected at the end of the Fall '08 and Spring '09 terms, and loop-closing was carried out. An alternate text is under consideration.

4. Reformulation of Educational Objectives for the MCS programs. Program Educational Objectives were reformulated to include University Educational Goals, College of Arts and Sciences educational goals as well as program goals. Program goals were reviewed against ABET educational outcomes and revised as described above.

5. Assessment Plan for MSCS program. Work on an assessment plan for the MSCS program was begun. A revised set of educational goals has been adopted. An assessment plan was also adopted.

## Action Plan for Academic Year 2009-2010

1. Continue and expand data collection for CS. We intend to begin direct assessment of exams and student work, rather than supplying specific items to be included on the final.
2. Begin data collection for the Master of Science in Computer Science program.
3. Create a departmental repository for assessment documents and data.
4. Continue assessment activities for the University Mathematics Core.
5. Continue loop-closing for developmental math program
6. Develop rubrics to support assessment plans

***Department of Natural Sciences***  
**2008-2009 Assessment Report**

### **1. Program Educational Objectives, Outcomes, and Accreditation Status**

The Department of Natural Sciences offers three programs that are accredited by outside agencies. The B.S. in Chemistry, Chemical Biology and Environmental Chemistry are 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 Plans (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 Chemical Biology, Chemistry, Environmental Chemistry, Molecular and Cell Biology, Physics are given in the form of a matrix. This and other relevant documents have been posted to the Assessment Blackboard site.

The 2008 – 09 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.

Biology faculty fine tuned the MCB program's assessment plan which was implemented this year.

MSE faculty are in the process of updating their assessment plan to fit the matrix format with updated indicators and timelines that correspond more with what is actually being done.

#### **Chemical Biology and Molecular and Cell Biology:**

These are new programs so most of the assessment of the programs goals started in 2009 and will be ongoing. The following are current program goals that have been assessed for this academic year. See plan for more information about timeline and goals.

II. "Graduates are satisfied that they have been effectively prepared for their professional careers."

Courses BIO1213, BIO1223 and BIO2323 were assessed with both having over

80% “confident” and “very confident” overall of their mastery of the course objectives which meets the strategy set forth in the plan.

- III. “Graduates will demonstrate competence, appropriate to their program, in:  
Use of modern laboratory instrumentation and Use of the literature”

BIO 4813 – Cell Biology assessed and had over an 80% “satisfactory” or “superior” performance satisfying the strategy set forth in the plan.

- IV. “Graduates will demonstrate skill in analytical and critical thinking appropriate to their discipline...”

IVb. Selected courses will include laboratory exercises in which students must plan experiments and understand results with minimal assistance.

Course BIO1221 and BIO1231 was assessed and had over an 80% “satisfactory” or “superior” performance satisfying the strategy set forth in the plan.

BIO 4813 – Cell Biology assessed and had over an 80% “satisfactory” or “superior” performance satisfying the strategy set forth in the plan.

IVd. Laboratory reports will be evaluated using rubric, including standards for organization, language, and visual communication (tables and graphs). All laboratory courses will have rubrics.

BIO 1221, 1231, and 4811 were assessed and had over an 80% “satisfactory” or “superior” performance satisfying the strategy set forth in the plan. Also, CHM2332 (Organic Chemistry lab) was assessed.

- V. “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.

### **Chemistry and Environmental Chemistry:**

Some assessment strategies have been modified to correspond with what is actually being done by the department in the previous year.

- I. Graduates demonstrate knowledge in five major division of chemistry: organic/biochemistry, inorganic chemistry, analytical chemistry, and physical chemistry.
  - Ib. The ETS exam was administered to all chemistry graduating seniors. Results have not been reported to departmental assessment coordinator at this time.
  - Ic The Natural Science Department needs to review of exit exam results along with

reviewing how the chem. program corresponds to the questions asked on the ETS exit exam.

- II. Graduates demonstrate competence/ appropriate to their program in use of modern laboratory instrumentation, chemical synthesis and chemical analysis, and use of the chemical literature. Courses evaluated:

CHM4542 - Physical Analytical 2  
laboratory CHM 3463 – Advanced  
Synthesis laboratory

Students who passed each course with a C or better met course assessment strategy as qualified.

- III. “Graduates will demonstrate skill in analytical thinking appropriate to their discipline.” Also, students demonstrate written, oral, and visual communications skills appropriate to laboratory reports, technical writing, and public presentation of scientific information.

IIIa. Students will analyze and present a paper from the chemical literature to a panel of faculty and students and

CHM4522 (Advanced Spectroscopy) and CHM2323 (Organic Chemistry 2). The presentation component was evaluated by rubric and students achieved 80% “satisfactory” or “superior” performance.

- IIIb. Selected courses will include laboratory exercises in which students must plan experiments and understand results with minimal assistance. The following course was evaluated:

CHM4542 - Physical Analytical 2 laboratory

Students who passed the course with a C or better met course assessment strategy.

- IIIc. Students wrote a paper as part of CHM3403(Biochemistry). The writing component will be evaluated by rubric. 80% or more achieved “satisfactory” or “superior” performance.

- 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. 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 unless otherwise noted.

<u>Course</u>	<u>Term</u>	<u>Course</u>	<u>Term</u>
CHM1154/	Fa05	CHM3434	(not reported)
CHM3144	All (not surveyed at this time)	CHM3403	Fa08
CHM1213	All (not surveyed at this time)	CHM3411	Fa08
CHM1221	All (not surveyed at this time)	CHM3431	(not reported)
CHM1223	Sp09	CHM3441	Fa08 (not reported)
CHM1232	Sp09	CHM3442	(not taught)
CHM2313	Fa08	CHM3452	(not taught)
CHM2323	Sp09	CHM3463	Fa08
CHM2332	Sp09	CHM3623	(not taught)
CHM2342	Fa08	CHM4522	Sp09
CHM2352	Fa08	CHM4542	Sp09
CHM3383	(not taught)	CHM2631	(not taught)
CHM4643	(not taught)	CHM4631/4632	(not taught)
CHM3423	(not taught))	CHM4723	Sp09
		CHM4843	Sp07 (not taught)

Unfortunately after several attempts to get survey results, three courses were not reported for this academic year.

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

Results still pending from Department Chair.

- V. “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.

## Physics:

- I. “Graduates will demonstrate knowledge in the following areas of Physics: Optics, Quantum Mechanics, Theoretical Mechanics, Statistical Mechanics, Thermodynamics, Relativity, Electricity & Magnetism, and Radioactivity ”

Ia. The ETS exam was administered to all physics graduating seniors. Results expected in Fall '09.

Ib. The Natural Science Department needs to review of exit exam results along with reviewing how the physics program corresponds to the questions asked on the ETS exit exam.

- II. “Graduates are satisfied that all areas of Physics listed in goal (I) above have been competently taught.” Iia. Physics faculty have developed an exit survey to be given to all graduating physics seniors.

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 equal to or greater than 80% confidence in their mastery of the course objectives.

PHY1213/1221	PHY3653 (not taught)
PHY2213/2221	PHY3661 (not taught)
PHY2223	PHY4724 (not taught)
PHY2413/2421	PHY4743 Sp09
PHY2131	PHY4763 Fa08
PHY2423/2431	PHY4781 Sp09
PHY3414 (not taught)	PHY4843 Sp09

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

III. Graduates demonstrate competence in using modern laboratory instrumentation in the physics labs.

PHY4781 – Optics, Lasers, & Microscopy laboratory. 80% or above received qualified.

IV. Graduates will demonstrate skill in analytical thinking appropriate to Physics which includes data analysis. They will also demonstrate written, and visual communications skills appropriate to laboratory reports, technical writing.

PHY4781 – Optics, Lasers, & Microscopy laboratory. 80% or above received qualified.

V. “Graduates will demonstrate the ability to do independent theoretical or experimental research...” Successful completion of Physics Project courses (PHY4912 and PHY4922)

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

VIb. 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.

VIc. 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.



- VII. “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 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 assessment plan is still a work in progress. Evaluation of the plan will begin in 2009-10.

### **3. Action Plan for 2009 – 2010**

The action plan for the Department of Natural Sciences for 2009 – 2010 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. Also, the assessment plan format will be updated to conform to the University Assessment committee’s template. Further efforts will be made to increase performance in administering surveys, etc and a departmental database.

**Department of Natural Sciences Assessment Plan: Program-Specific Goals: Chemical Biology**

(Date created = 4/30/07) (Date Printed = 3/23/10)

Goals	Strategies	Indicators	Timeline
<p>I. Graduates will demonstrate knowledge in organic chemistry, biochemistry, biology and inorganic.</p> <p>The Chemical Biology program will be guided by national norms.</p>	<p>Ia. Administer ETS exit exam to all chemical biology graduates.</p> <p>Ib. Departmental review of exit exam results. Review how the chem.biology program corresponds to the questions asked on the ETS exit exam.</p>	<p>50% of graduates score at or above 75<sup>th</sup> percentile (two-year running average)</p> <p>Alignment of curriculum with exit exam questions; identification of weak points.</p>	<p>Annually, late spring.</p> <p>At least once every four years (start 2008).</p>
<p>II. Graduates are satisfied that they have been effectively prepared for their professional careers.</p> <p>Professional Ethics and Integrity</p>	<p>IIa. Course objectives will be developed for biology courses. Students in selected courses will be surveyed at the end of the term as to whether these objectives have been met.</p> <p>IIb. Exit interview of graduates.</p> <p>IIIC. Best practices course on Ethics in Biomed. program</p>	<p>80% “confident” and “very confident” overall of their mastery of the course objectives.</p> <p>80% “satisfied” or “very satisfied” with their chemical biology preparation. Place results in the department data base.</p> <p>80% “confident” and “very confident” overall of their mastery of the course objectives.</p>	<p>Start Fall 2006</p> <p>Annually, start Spring 2008.</p>
<p>III. Graduates will demonstrate competence, appropriate to their program, in:</p> <p>Use of modern laboratory instrumentation</p> <p>Use of the literature</p>	<p>III. Course work in:</p> <p>Students must individually and successfully use instrumentation available in the department.</p> <p>BIO 2323, BIO 4813</p>	<p>80% “confident” and “very confident” overall of their mastery of the course objectives.</p>	<p>Spring 2008</p>

<p>IV. Graduates will demonstrate skill in analytical and critical thinking appropriate to their discipline.</p> <p>They will demonstrate written, oral, and visual communications skills appropriate to laboratory reports, technical writing, and public presentation of scientific information.</p>	<p>IVa. Students will analyze and present a paper from the literature to a panel of faculty and students as part of BIO 4813. The presentation component will be evaluated by rubric.</p> <p>IVb. Selected courses will include laboratory exercises in which students must plan experiments and understand results with minimal assistance.</p> <p>BIO 1221</p> <p>IVc. Students will write a paper as part of BIO 2323.</p> <p>The writing component will be evaluated by rubric.</p> <p>IVd. Laboratory reports will be evaluated using rubric, including standards for organization, language, and visual communication (tables and graphs). All laboratory courses will have rubrics.</p> <p>BIO 1221, 1231, and 4811</p>	<p>80% “satisfactory” or “superior” performance by the senior year. Place results in the department data base.</p> <p>80% “satisfactory” or “superior” performance. Place results in the department data base.</p> <p>80% “satisfactory” or “superior” performance. Place results in the department data base.</p> <p>80% “satisfactory” or “superior” performance. Place results in the department data base.</p>	<p>Spring 2008</p> <p>Fall 2006</p> <p>Spring 2008</p> <p>Fall 2007</p>
<p>V. Graduates will be able to work in teams, and will have opportunities to develop leadership abilities.</p>	<p>Va. On team laboratory exercises, require recording and reporting each team member’s contribution; evaluation includes criteria for effective teamwork.</p> <p>BIO 1221 and 1231</p> <p>Vb. Opportunities to develop leadership skills will be provided in extracurricular professional activities (such as Michigan Biology student section).</p>	<p>Instructor and team –self evaluation</p> <p>Need self-peer evaluation document?</p>	<p>Fall 2007</p> <p>Ongoing</p>

# Department of Natural Sciences Assessment Plan: Program-Specific Goals: Chemistry

(Date Revised = 4/30/08) (Date Printed = 3/23/10)

Goals	Strategies	Indicators	Timeline
<p>I. Graduates demonstrate knowledge in five major division of chemistry: organic/biochemistry, inorganic chemistry, analytical chemistry, and physical chemistry.</p> <p>The Chemistry program is guided by national norms.</p>	<p>Ia-. Mid-course departmental review of students during Junior year: selected exams and reports</p> <p>Ib- Administer ETS exit exam to all chemistry graduates.</p> <p>Ic Departmental review of exit exam results. Review how the chem. program corresponds to the questions asked on the ETS exit exam.</p>	<p>Students making satisfactory progress; intervention where appropriate</p> <p>60% of graduates score at or above 75<sup>th</sup> percentile (two-year running average)</p> <p>Alignment of curriculum with exit exam questions; identification of weak points.</p>	<p>Annually, late spring (already being done).</p> <p>Every four years (last 2001, next 2007)</p>
<p>II. Graduates demonstrate competence/ appropriate to their program, in:</p> <p>Use of modern laboratory instrumentation</p> <p>Chemical synthesis and chemical analysis</p> <p>Use of the chemical literature</p>	<p>II. Course work in: CHM4632 - Instrumental Analysis and/or CHM4542 - Physical Analytical Lab II CHM 3463 - Advanced Synthesis</p> <p>Students must individually and successfully use instrumentation and chemical literature available in the department. Includes analysis of unknown substances, student-synthesized materials, or natural samples.</p>	<p>The designation of Qualified/Not Qualified will be entered into the Chemistry Data Base. 80% will receive a "Qualified" designation.</p>	<p>Spring 2007</p>
<p>III. Graduates demonstrate skill in analytical and critical thinking appropriate to their discipline.</p>	<p>IIIa. Students will analyze and present a paper from the chemical literature to a panel of faculty and students as part of CHM4643 (Advanced Inorganic), and CHM4723 (Advanced Organic). The presentation component will be evaluated by rubric.</p> <p>IIIb. Selected courses will include laboratory exercises in which students must plan experiments and understand results with minimal assistance. Courses may include: CHM 4632 - Instrumental Analysis and/or CHM 3463 - Advanced Synthesis</p>	<p>80% "satisfactory" or "superior" performance. Place results in the Chemistry Data base.</p> <p>80% "satisfactory" or "superior" performance. Place results in the Chemistry Data base.</p>	<p>Start Spring 2003</p> <p>Start Spring 2006</p>

<p>Students demonstrate written, oral, and visual communications skills appropriate to laboratory reports, technical writing, and public presentation of scientific information.</p>	<p>IIIc. Students will write a paper as part of CHM3452 (Intermediate Inorganic Chemistry), CHM3383 (Environmental Chemistry), and CHM3623 (Polymer Chemistry). The writing component will be evaluated by rubric.</p> <p>IIId. Laboratory reports will be evaluated using rubric, including standards for organization, language, and visual communication (tables and graphs). All laboratory courses will have rubrics.</p>	<p>80% “satisfactory” or “superior” performance by students. Place results in the Chemistry Data base.</p> <p>80% “satisfactory” or “superior” performance. Place results in the Chemistry Data base.</p>	<p>Fall 2003</p> <p>Spring 2003</p>
<p>IV. Graduates are satisfied that they have been effectively prepared for their professional careers.</p>	<p>IVa. All courses above CHM 1213 have course objectives</p> <p>IVb. Students will be surveyed at the end of the term as to whether these objectives have been met.</p> <p>IVc. Exit interview of graduates.</p>	<p>80% “confident” and “very confident” overall of their mastery of the course objectives.</p> <p>80% “satisfied” or “very satisfied” with their chemistry preparation. Place results in the Chemistry Data base.</p>	<p>Ongoing</p> <p>Annually</p> <p>Annually</p>
<p>V. Graduates will be able to work in teams, and will have opportunities to develop leadership abilities.</p>	<p>Va. On team laboratory exercises, require recording and reporting each team member’s contribution; evaluation includes criteria for effective teamwork. Courses may include: CHM4632 - Instrumental Analysis and/or CHM4542 - Physical Analytical Lab II CHM 3463 - Advanced Synthesis</p> <p>Vb Opportunities to develop leadership skills will be provided in extracurricular professional activities (ACS Student Section).</p>	<p>Instructor and team –self evaluation</p> <p>Need self-pier evaluation document?</p>	<p>Fall 2008</p> <p>Ongoing</p>

**Department of Natural Sciences Assessment Plan: Program-Specific Goals: Environmental Chemistry**  
**(Date Revised = 5/19/08) (Date Printed = 3/23/10)**

Goals	Strategies	Indicators	Timeline
<p>I. Graduates demonstrate knowledge in the following divisions of chemistry: organic/biochemistry, inorganic chemistry, analytical chemistry, environmental chemistry and physical chemistry.</p> <p>The Chemistry program is guided by national norms.</p>	<p>Ia-. Mid-course departmental review of students during Junior year: selected exams and reports</p> <p>Ib- Administer ETS exit exam to all chemistry graduates.</p> <p>Ic Departmental review of exit exam results. Review how the chem. program corresponds to the questions asked on the ETS exit exam.</p>	<p>Students making satisfactory progress; intervention where appropriate</p> <p>60% of graduates score at or above 75<sup>th</sup> percentile (two-year running average)</p> <p>Alignment of curriculum with exit exam questions; identification of weak points.</p>	<p>Annually, late spring (already being done).</p> <p>Every four years (last 2001, next 2007)</p>
<p>II. Graduates demonstrate competence/ appropriate to their program, in:</p> <p>Use of modern laboratory instrumentation</p> <p>Chemical synthesis and chemical analysis</p> <p>Use of the chemical literature</p>	<p>II. Course work in:</p> <p>CHM4632 - Instrumental Analysis and/or  CHM4541 - Advanced Spectroscopy Lab  CHM 3392 – Environmental Sampling  CHM 3463 - Advanced Synthesis</p> <p>Students must individually and successfully use instrumentation and chemical literature available in the department. Includes analysis of unknown substances, student-synthesized materials, or natural samples.</p>	<p>The designation of Qualified/Not Qualified will be entered into the Chemistry Data Base. 80% will receive a “Qualified” designation.</p>	<p>Spring 2007</p>

<p>III. Graduates demonstrate skill in analytical and critical thinking appropriate to their discipline.</p> <p>Students demonstrate written, oral, and visual communications skills appropriate to laboratory reports, technical writing, and public presentation of scientific information.</p>	<p>III. Selected courses will include laboratory exercises in which students must plan experiments and understand results with minimal assistance. Courses may include: CHM 4632 - Instrumental Analysis and/or CHM 3463 - Advanced Synthesis CHM4541 - Advanced Spectroscopy Lab</p> <p>IIIb.Students will write a paper as part of CHM3452 (Intermediate Inorganic Chemistry), CHM3383 (Environmental Chemistry). The writing component will be evaluated by rubric.</p>	<p>80% “satisfactory” or “superior” performance. Place results in the Chemistry Data base.</p> <p>80% “satisfactory” or “superior” performance by students. Place results in the Chemistry Data base.</p>	<p>Start Spring 2006</p> <p>Fall 2003</p>
	<p>IIIc. Laboratory reports will be evaluated using rubric, including standards for organization, language, and visual communication (tables and graphs). All laboratory courses will have rubrics.</p>	<p>80% “satisfactory” or “superior” performance. Place results in the Chemistry Data base.</p>	<p>Spring 2003</p>
<p>IV. Graduates are satisfied that they have been effectively prepared for their professional careers.</p>	<p>IVa.All courses above CHM 1213 have course objectives</p> <p>IVb.Students will be surveyed at the end of the term as to whether these objectives have been met.</p> <p>IVc.Exit interview of graduates.</p>	<p>80% “confident” and “very confident” overall of their mastery of the course objectives.</p> <p>80% “satisfied” or “very satisfied” with their chemistry preparation. Place results in the Chemistry Data base.</p>	<p>Ongoing</p> <p>Annually</p> <p>Annually</p>

<p>V. Graduates will be able to work in teams, and will have opportunities to develop leadership abilities.</p>	<p>Va. On team laboratory exercises, require recording and reporting each team member's contribution; evaluation includes criteria for effective teamwork. Courses may include: CHM4632 - Instrumental Analysis and/or CHM4541 - Advanced Spectroscopy Lab CHM 3463 - Advanced Synthesis</p> <p>Vb Opportunities to develop leadership skills will be provided in extracurricular professional activities (ACS Student Section).</p>	<p>Instructor and team –self evaluation</p> <p>Need self-peer evaluation document?</p>	<p>Fall 2008</p> <p>Ongoing</p>
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### Department of Natural Sciences Assessment Plan: Program-Specific Goals: Molecular & Cell Biology

(Date created = 6/2/08) (Date Printed = 3/23/10)

Goals	Strategies	Indicators	Timeline
<p>I. Graduates will demonstrate knowledge in biology with special emphasis on biochemistry, genetics, molecular biology and cell biology.</p> <p>The Molecular &amp; Cell Biology program will be guided by national norms.</p>	<p>Ia. Administer ETS exit exam to all Molecular &amp; Cell Biology graduates.</p> <p>Ib. Departmental review of exit exam results. Review how the Molecular &amp; Cell Biology program corresponds to the questions asked on the ETS exit exam.</p>	<p>50% of graduates score at or above 75<sup>th</sup> percentile (two-year running average)</p> <p>Alignment of curriculum with exit exam questions; identification of weak points.</p>	<p>Annually, late spring.</p> <p>At least once every four years (start 2010).</p>
<p>II. Graduates are satisfied that they have been effectively prepared for their professional careers.</p> <p>Professional Ethics and Integrity</p>	<p>IIa. Course objectives will be developed for biology courses. Students in selected courses will be surveyed at the end of the term as to whether these objectives have been met.</p> <p>IIb. Exit interview of graduates.</p> <p>IIIC. Best practices course on Ethics in Biomed. Program and /or</p>	<p>80% “confident” and “very confident” overall of their mastery of the course objectives.</p> <p>80% “satisfied” or “very satisfied” with their chemical biology preparation. Place results in the department data base.</p> <p>80% “confident” and “very confident” overall of their mastery of the course objectives.</p>	<p>Start Fall 2006</p> <p>Annually, start Spring 2010.</p>
<p>III. Graduates will demonstrate competence, appropriate to their program, in:</p> <p>Use of modern laboratory instrumentation</p> <p>Use of the literature</p>	<p>III. Course work in:</p> <p>Students must individually and successfully use instrumentation available in the department.</p> <p>BIO 2323, BIO 4813</p>	<p>80% “confident” and “very confident” overall of their mastery of the course objectives.</p>	<p>Spring 2008 &amp; Spring 2009</p>

<p>IV. Graduates will demonstrate skill in analytical and critical thinking appropriate to their discipline.</p> <p>They will demonstrate written, oral, and visual communications skills appropriate to laboratory reports, technical writing, and public presentation of scientific information.</p>	<p>IVa. Students will analyze and present a paper from the literature to a panel of faculty and students as part of BIO 4813. The presentation component will be evaluated by rubric.</p> <p>IVb. Selected courses will include laboratory exercises in which students must plan experiments and understand results with minimal assistance.</p> <p>BIO 1221 and BIO 4813</p> <p>IVc. Students will write a paper as part of BIO 2323.</p> <p>The writing component will be evaluated by rubric.</p> <p>IVd. Laboratory reports will be evaluated using rubric, including standards for organization, language, and visual communication (tables and graphs). All laboratory courses will have rubrics.</p> <p>BIO 1221, 1231, and 4811</p>	<p>80% “satisfactory” or “superior” performance by the senior year. Place results in the department data base.</p> <p>80% “satisfactory” or “superior” performance. Place results in the department data base.</p> <p>80% “satisfactory” or “superior” performance. Place results in the department data base.</p> <p>80% “satisfactory” or “superior” performance. Place results in the department data base.</p>	<p>Spring 2009</p> <p>Fall 2006 &amp; Spring 2009</p> <p>Spring 2008</p> <p>Fall 2007 and Spring 2009</p>
<p>V. Graduates will be able to work in teams, and will have opportunities to develop leadership abilities.</p>	<p>Va. On team laboratory exercises, require recording and reporting each team member’s contribution; evaluation includes criteria for effective teamwork.</p> <p>BIO 1221 and 1231</p> <p>Vb. Opportunities to develop leadership skills will be provided in extracurricular professional activities (such as Michigan Biology student section).</p>	<p>Instructor and team –self evaluation</p> <p>Need self-peer evaluation document?</p>	<p>Fall 2007</p> <p>Ongoing</p>

**Department of Natural Sciences Assessment Plan: Program-Specific Goals: Physics**  
**(Date Revised = 10/17/2006) (Date Printed = 3/23/10)**

Goals	Strategies	Indicators	Timeline
<p>I. Graduates will demonstrate knowledge in the following areas of Physics: Optics, Quantum Mechanics, Theoretical Mechanics, Statistical Mechanics, Thermodynamics, Relativity, Electricity &amp; Magnetism, and Radioactivity.</p> <p>The Physics program will be guided by national norms.</p>	<p>Ia. Administer ETS exit exam to all physics graduates.</p> <p>Ib. Departmental review of exit exam results. We will see how well our program corresponds to the questions asked on the ETS exit exam.</p>	<p>60% of graduates score at or above 75<sup>th</sup> percentile (two-year running average)</p> <p>Alignment of curriculum with exit exam questions; identification of weak points.</p>	<p>Annually, late spring (already being done).</p> <p>Biannually Starts Fall 2007 - Start deciding what changes to make in Physics Curriculum in Spring 2008.</p>
<p>II. Graduates are satisfied that all areas of Physics listed in goal (I.) above have been competently taught.</p>	<p>IIa. Exit interview of graduates by Department Chair.</p> <p>IIb. Students in selected courses will be surveyed at the end of the term as to whether these objectives have been met.</p>	<p>80% “satisfied” or “very satisfied” with their preparation. Place results in the <b>Physics Data base</b>.</p> <p>80% “somewhat confident” and “very confident of their mastery of the course objectives</p>	<p>Annually, late spring. Start Spring 2007</p> <p>Annually, start Fall 2005</p>
<p>III. Graduates demonstrate competence in using modern laboratory instrumentation in the physics labs.</p>	<p>III. Take the Physics Lab courses:</p> <ul style="list-style-type: none"> <li>- PHY3661 - Contemporary Physics Lab</li> <li>- PHY4781 – Optics, Lasers &amp; Micro Lab</li> </ul> <p>Twice a semester , a peer assessment will be performed (with Instructor input). The subject of the assessment will be the use of instrumentation in these labs.</p>	<p>The designation of Qualified/Not Qualified will be entered into <b>the Physics Data Base</b>. 80% will receive a “Qualified” designation.</p>	<p>Annually, starting in Fall 2006</p>

<p>IV. Graduates will demonstrate skill in analytical thinking appropriate to Physics which includes data analysis. They will also demonstrate written, and visual communications skills appropriate to laboratory reports, technical writing. (This goal and strategies articulate with the University goals in Communication)</p>	<p>IV. a. All Physics Lab reports in the PHY3661 and PHY4781 courses will require an analysis section where the student are expected to due a thorough analysis includes data analysis according to rubric.</p> <p>IV. b. The PHY3661 and PHY4781 courses will include laboratory exercises for which no instructions will be provided. Students must plan experiments and understand results.</p>	<p>Give a separate grade for the analysis and enter it in the <b>Physics Data Base</b>. Rubrics, based on NIST standards, will be used. 80% of the Lab reports will show a B+ or better on the analysis.</p> <p>80% of the students will earn a B+ or better for the lab reports where no instructions will be given. Enter the results in the <b>Physics Data Base</b>.</p>	<p>Rubric is already used Indicator will be recorded annually. Starts Fall 2006</p> <p>Fall 2006</p>
<p>V. Graduates will demonstrate the ability to do independent Theoretical or Experimental Research at the undergraduate level. They will also demonstrate written, oral, and visual communications skills appropriate to technical writing, and public presentation of scientific information. (This goal and strategies articulate with the University goals in Communication)</p>	<p>V. The student who will take the Physics Project courses PHY4912 &amp; PHY4922 will write reports and make oral presentations; evaluation by rubric. Physics 3653 will give a book or literature report.</p>	<p>80% of the students will earn a B+ or better for the presentation of <b>written reports</b> for each course according to guidelines.</p> <p>80% of the students will earn a B+ or better for presentations of <b>oral reports</b> for each course according to guidelines.</p>	<p>Annually Starting Fall 2006</p>
<p>VI. PHY1154 (Introduction to Physical Principles) students will be adequately prepared for PHY2413 (University Physics 1) and PHY2213 (College Physics 1).</p>	<p>VIa. Align PHY1154 final exam and placement assessment into PHY2213 &amp; PHY2413.</p> <p>VIb. PHY1154 grade / PHY2413 &amp; PHY2213 grade correlation study.</p> <p>VIc. Give pre- and post-tests to PHY2413 &amp; PHY2213 using the "Force Concept Inventory-FCI" (a test used nationally).</p>	<p>80% of students with a C or better in PHY1154 earn a C or better in PHY2213 &amp; PHY2413.</p> <p>(Same)</p> <p>The students completing the courses will achieve a gain in correct answers for the FCI (on average) at a level comparable to those achieved nationally.</p>	<p>Fall 2004</p> <p>Annual Assessment starts Fall 04. Biannual report will be analyzed starting with the Fall 2006 retreat.</p>

<p>VII. Graduates will be able to work in teams, and will have opportunities to develop leadership abilities.</p>	<p>VII. a. Some sections of PHY2413/2423 will implement team concepts into course work.</p> <p>VII. b. Identify team member roles in team exercises.</p> <p>VII. c. We will encourage students to avail themselves of the opportunities to develop leadership skills in extracurricular activities in student organizations(participation in SPS).</p>	<p>Team process check survey will be used that identify the student roles in the lab. These check lists must be included in the lab reports.</p> <p>80% of responses with always satisfied or frequently satisfied to the team process survey which will also include peer evaluation to assess team member contributions.</p>	<p>Fall 2006</p> <p>Fall 2006</p> <p>Ongoing</p>
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**College of Engineering**  
**Civil Engineering Department**

**1. Program Educational Objectives, Outcomes, and Accreditation Status**

The Department of Civil Engineering revised its Program Educational Objectives and Outcomes for the 2008-2009 Academic year. The decision was made by the Department with feedback from students and the Advisory Board to align our objectives and outcomes unchanged based on the ASCE Body of Knowledge 2<sup>nd</sup> Edition (BOK2). A revised assessment plan based on the BOK2 is being devised for the 2008-2009 Academic Year. The degree is accredited by ABET and was visited during October of 2004. The program received a full six year accreditation cycle from ABET. Preparations are underway for the 2010 ABET visit.

**A. Assessment Tools for 2008-2009**

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

<b>Assessment Tool</b>	<b>Description</b>	<b>Performance Criteria</b>
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.
Evaluation of Senior Projects Day By Professionals and Faculty	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 including professionals and faculty. Evaluations are archived separately.	General satisfaction by the Advisory Board (and/or employers).  A minimum of a 3.0 on a 5 point scale.
Evaluation of Senior Project Posters	Similar to evaluation of senior projects however faculty and professionals are asked to evaluate technical posters based on a rubric.	General satisfaction by the Faculty.  A minimum of a 3.0 on a 5 point scale.
Faculty Evaluation of Senior Design Presentations	Faculty evaluate senior design presentations using oral and technical rubrics at multiple times throughout the two semester sequence. This is a formative assessment process.	A passing grade for the presentation/report based on the rubric.
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.
Direct Assessment	Direct assessment of student learning in specific courses.	A minimum of 3.0 on a 5 point scale.
Peer Assessment of Teamwork and Leadership	Every member of a senior design team evaluate themselves and their peers on a teamwork & leadership rubric.	A minimum of 3.0 on a 5 point scale.
Writing Proficiency Exam	A university wide assessment of student written communication abilities that serves as a gateway exam. All students must pass the exam or complete an additional composition course.	All students must satisfy criterion to graduate.
Leadership Curriculum Assessment	University wide assessment of student leadership skills.	None yet established.

## B. Assessment Results for 2008-2009

During the 2008-2009 Academic Year, eight assessment tools were used to determine if the Program Outcomes are being achieved. With respect to student attainment of individual Program Outcomes, each assessment tool utilized by the department addresses one or more Outcomes. 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 II. 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. Several of the assessment tools (evaluation of Senior Design presentations and posters, peer assessment of leadership and teamwork) are represented by numerical mean of all of the evaluators' rankings. However, a majority of the assessment tools are in 0.5 increments based on the feedback of the entire faculty or a faculty committee asked to evaluate student work.

The bottom row of Table II has the consensus rankings on whether the program achieved the desired level for all Outcomes. These numbers were determined by the faculty based on the results and were limited to half point increments. The overall ranking is not based on an arithmetic mean, but rather a subjective weighting based on faculty input. The faculty decided that any overall score higher than a 3.0 meets program criteria, but with some concern and a 2.5 or lower indicates that the outcome is not obtained for the academic year. From Table II, it can be seen every Program Outcome met faculty expectations for the given academic year with the exception of *Outcome (12) Risk and Uncertainty*. However, nine outcomes were a basis of concern for the faculty. This is primarily due to the implementation of the BOK2 during this academic year and the widespread modification of courses and assessment tools that has accompanied this transition. Action items have been developed for each outcome as a result.

In addition to assessment of student learning, the Department also conducts assessment of student satisfaction with the program. The two primary forms of assessing student satisfaction is the Advisory Board meeting with students and the exit interviews with the Chair. Overall, the feedback from both of those venues is very positive.





Foundational Outcomes					Technical Outcomes										Professional Outcomes									
Evaluation Metric						Mechanics (6)	Experiments (7)	Problem Solving (8)	Design (9)	Sustainability (10)	Cont. Issues & Historical (11)	Risk & Uncertainty (12)	Project Management (13)	Breadth (14)	Technical Specialization (15)	Communication (16)	Public Policy (17)	Business & Public Admin. (18)	Globalization (19)	Leadership (20)	Teamwork (21)	Attitudes (22)	Lifelong Learning (23)	Prof. and Ethical Responsibility (24)
Direct Assess ECE3013 F08	4	4			1																			
Direct Assess ECE3013 S09	4	4			1																			
Direct Assess ECE3324 F08																								
Direct Assess ECE3324 S09														4	4									
Direct Assess ECE3424 S09					5		5							4	4									
Direct Assess ECE3723 F08	-	-				-																		
Direct Assess ECE3723 S09	4	4				1																		
Direct Assess ECE3823 F08				4							4			4	4		4	4						
Direct Assess ECE3823 S09				4							4			4	4		4	4						
Direct Assess ECE4051 F08			1								4						4		4		4	3	4	
Direct Assess ECE4051 S09			1								4						5		5		4	3	4	
Direct Assess ECE4243 S09								4					4			4	3	4	1					
Direct Assess ECE4544 F08						4	4	4	3					3	4						4			

Foundational Outcomes					Technical Outcomes											Professional Outcomes									
Evaluation Metric						Mechanics (6)	Experiments (7)	Problem Solving (8)	Design (9)	Sustainability (10)	Cont. Issues & Historical (11)	Risk & Uncertainty (12)	Project Management (13)	Breadth (14)	Technical Specialization (15)	Communication (16)	Public Policy (17)	Business & Public Admin. (18)	Globalization (19)	Leadership (20)	Teamwork (21)	Attitudes (22)	Lifelong Learning (23)	Prof. and Ethical Responsibility (24)	
Direct Assess ECE4544 S09						4	4	4	3					3	4						4				
Direct Assess ECE4743 F08									-					-	-	-									
Direct Assess ECE4743 S09									3					4	3	3									
Direct Assess ECE4761 F08							5		5			2									5				
Direct Assess ECE4761 S09							5		5			1									5				
Overall Rank	4	4	3	4	3	3	5	4	4	3.5	4	2	4	3.5	3.5	4	4	4	3	3	5	3.5	4	4	

The Overall Rank is not based on an arithmetic mean, but rather a subjective weighting based on faculty input and consensus. The scale is from 1 to 5 in 0.5 increments.

Interpretation: 4+ meets program goals

3-3.5 meets program goals, but with some concern

2.5 or lower indicates outcome not attained for academic year

### C. Incomplete or Postponed Activities

None

### 2. Action Plan for 2009-2010.

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, John Tocco. A timeline for the assessment plan can be found in Table III.

**Table III Civil Engineering Department Assessment Timeline**

<b>Assessment Description</b>	<b>Fall 2008</b>	<b>Spring 2009</b>	<b>Fall 2009</b>	<b>Spring 2010</b>	<b>Fall 2010</b>	<b>Spring 2011</b>	<b>Fall 2011</b>	<b>Spring 2012</b>
1) Exit Interview	X	X	X	X	X	X	X	X
2) Advisory Board Interviews		X		X		X		X
3) Evaluation of Senior Projects Day		X		X		X		X
4) Evaluation of Senior Design Posters		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) Peer Assessment of Teamwork and Leadership		X		X		X		X
8) Direct Assessment in Courses	X	X	X	X	X	X	X	X
9) Leadership Curriculum Assessment	X	X	X	X	X	X	X	X
10) COM3000 Writing Proficiency Exam	X	X	X	X	X	X	X	X
11) FE Exam			X				X	

## Appendix A

### Civil Engineering Program Objectives and Outcomes 2008 – present

#### 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 focusing on a broad, high quality, contemporary, baccalaureate educational experience in the civil engineering discipline, in parallel with the University's guiding principle of "Leadership Through Theory and Practice." The objectives are to offer a program that:*

- *provides a strong foundation in mathematics, natural sciences, humanities and social sciences as a basis for developing into a well-rounded engineer;*
- *provides an essential understanding of the fundamental principles of engineering;*
- *develops the ability to identify and analyze problems with realistic constraints, devise and critique engineering alternatives, and formulate solutions both individually, as well as in a team environment;*
- *allows for the application contemporary skills for the solution of civil engineering problems, as well as the application and integration of the project management process;*
- *develops effective communicators in engineering and business environments and encourages positive contributions to all levels of public policy decision-making;*
- *stresses professionalism, leadership and committing to professional development through life-long learning and licensure; and*
- *encourages community and professional service, and the need to act ethically in all matters.*

### Civil Engineering Program Outcomes

Outcome number and title	To graduate with a B.S. Degree in Civil Engineering from Lawrence Technological University and enter the practice of civil engineering, an individual must be able to demonstrate this level of achievement for each of 24 Program Outcomes <sup>1</sup> .
<b>Foundational Outcomes</b>	
1 Mathematics	<i>Solve</i> problems in mathematics through differential equations and <i>apply</i> this knowledge to the solution of engineering problems. <b>(L3)</b>
2 Natural Sciences	<i>Solve</i> problems in calculus-based physics, chemistry, and geology and <i>apply</i> this knowledge to the solution of engineering problems. <b>(L3)</b>
3 Humanities	<i>Demonstrate</i> the importance of the humanities in the professional practice of engineering. <b>(L3)</b>
4 Social sciences	<i>Demonstrate</i> the incorporation of social sciences knowledge (such as economics) into the professional practice of engineering. <b>(L3)</b>
<b>Technical Outcomes</b>	
5 Materials Science	<i>Use</i> knowledge of materials science to <i>solve</i> problems appropriate to civil engineering. <b>(L3)</b>
6 Mechanics	<i>Analyze</i> and solve problems in solid and fluid mechanics. <b>(L4)</b>
7 Experiments	<i>Specify</i> and <i>design</i> an experiment to meet a specified need; conduct the experiment and analyze, interpret and <i>explain</i> the resulting data. <b>(L5)</b>
8 Problem recognition and solving	<i>Develop</i> problem statements and solve both well-defined and open-ended civil engineering problems by <i>selecting</i> and applying appropriate techniques and tools. <b>(L4)</b>
9 Design	<i>Design</i> a system of process to meet the desired needs within such realistic constraints as economic, environmental, social, political, ethical, health and safety, constructability, and sustainability. <b>(L5)</b>
10 Sustainability	<i>Apply</i> the principles of sustainability to the design of traditional and emergent engineering systems and <i>explain</i> how civil engineers should strive to comply with the principles of sustainable development in the performance of their professional duties. <b>(L3)</b>
11 Contemporary issues and historical perspectives	<i>Explain</i> the impact of historical and contemporary issues on the identification, formulation, and solution of engineering problems and <i>explain</i> the impact of engineering solutions on the economy, environment, political landscape, and society. <b>(L3)</b>
12 Risk and uncertainty	<i>Apply</i> the principles of probability and statistics and solve problems containing uncertainty. <b>(L3)</b>
13 Project management	<i>Analyze</i> a proposed project and <i>formulate</i> documents for incorporation into the project plan. <b>(L4)</b>
14 Breadth in civil engineering areas	<i>Analyze</i> and solve well-defined engineering problems in at least four technical areas appropriate to civil engineering. <b>(L4)</b>
15 Technical specialization	<i>Apply</i> specialized tools or technologies to solve problems in traditional or emerging specialized technical areas of civil engineering. <b>(L3)</b>

Professional Outcomes	
16 Communication	<b><i>Plan, compose, and integrate</i></b> the verbal, written, virtual, and graphical communication of a project to technical and non-technical audiences. <b>(L5)</b>
17 Public policy	<b><i>Discuss and explain</i></b> key concepts and processes involved in public policy. <b>(L2)</b>
18 Business and public administration	<b><i>Explain</i></b> key concepts and processes used in business and public administration. <b>(L2)</b>
19 Globalization	<b><i>Explain</i></b> global issues related to professional practice, infrastructure, environment, and service populations (as they arise across cultures, languages, and countries) <b>(L2)</b>
20 Leadership	<b><i>Explain</i></b> leadership principles and attitudes and <b><i>apply</i></b> those principles and attitudes when making decisions and directing the efforts of a small group. <b>(L3)</b>
21 Teamwork	<b><i>Function</i></b> effectively as a member of an intra-disciplinary team and <b><i>evaluate</i></b> the performance of the team and individual team members. <b>(L3)</b>
22 Attitudes	<b><i>Explain</i></b> attitudes supportive of the professional practice of civil engineering. <b>(L2)</b>
23 Life-long learning	<b><i>Demonstrate</i></b> the ability for self-directed learning and <b><i>identify</i></b> additional knowledge, skills, and attitudes appropriate for continued professional practice. <b>(L4)</b>
24 Ethical & Professional Responsibility	<b><i>Explain</i></b> the many aspects of professionalism and what it means to be a member of the civil engineering profession. and <b><i>Analyze</i></b> a situation involving multiple conflicting professional and ethical interests to determine an appropriate course of action. <b>(L4)</b>






<sup>1</sup> **Key:** L1 through L6 refer to these levels of achievement based on Bloom's Taxonomy:

- Level 1 (L1) - Knowledge
- Level 2 (L2) - Comprehension
- Level 3 (L3) - Application
- Level 4 (L4) – Analysis
- Level 5 (L5) - Synthesis
- Level 6 (L6) – Evaluation

***Electrical and Computer Engineering Department***  
2008-2009 Assessment Report

**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 Fall 2010. The department of Electrical and Computer Engineering solicits assessment data from the following:

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

The department of Electrical and Computer Engineering (ECE) has developed the following mission statement in the form of “Educational Objectives of ECE” which is posted on the website of the department ([http://ltu.edu/engineering/electricalandcomputer/ece\\_objectives.asp](http://ltu.edu/engineering/electricalandcomputer/ece_objectives.asp)) and in the catalog.

To graduate electrical/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.

This mission statement was revised by our IAB and it was discussed in November 2009 during our IAB meeting.

The Electrical and Computer Engineering department also regularly revises its educational outcomes. In Fall 2009, the LTU Electrical and Computer Engineering Programs educational outcomes were revised as follows.

The outcomes of Electrical and Computer Engineering department are:

### **Outcomes of Electrical Engineering**

- (a) an ability to apply knowledge of mathematics, science, and engineering
- (b) an ability to design and conduct experiments, as well as to analyze and interpret data
- (c) an ability to design an electrical system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- (d) an ability to function on multidisciplinary teams
- (e) an ability to identify, formulate, and solve electrical engineering problems
- (f) an understanding of professional and ethical responsibility
- (g) an ability to communicate electively
- (h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, 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 electrical engineering Practice
- (l) an ability to plan, design, simulate, fabricate, construct, and test circuit hardware

### **Outcomes of Computer Engineering**

- (a) an ability to apply knowledge of mathematics, science, and engineering
- (b) an ability to design and conduct experiments, as well as to analyze and interpret data
- (c) an ability to design a computer system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- (d) an ability to function on multidisciplinary teams
- (e) an ability to identify, formulate, and solve computer engineering problems
- (f) an understanding of professional and ethical responsibility
- (g) an ability to communicate electively
- (h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, 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 computer engineering practice
- (l) an ability to plan, design, simulate, fabricate, construct, and test circuit hardware
- (m) an ability to plan, design, test, and debug systems consisting of both software and hardware



## **Assessment Activities and Assessment Results**

### **A. Students**

Every year the LTU-ECE students participate in several methodologies of assessments as described in details below.

#### **I. 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 the outcomes are directly addresses 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, courses coordinators (see attachment I & II) will verify that the exam will address one or more of specific mentioned 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 on the other hand implies the outcome has not been achieved, and corrective action of the some sort is indicated.

Also, the direct assessment is used to ensure the individual program outcomes are presented in the courses at an appropriate level, and that all outcomes are sufficiently covered by the program.

#### **II. Assessment of the faculty and course**

At the end of each course, the instructor will pass an evaluation sheet to the students which gets administrated by a volunteer student from the class. Six questions are typically scrutinized:

- ❖ The instructor follows the course syllabus.
- ❖ The instructor's classroom presentations are well prepared.
- ❖ The instructor is willing and able to answer questions during and outside of class.
- ❖ The instructor is willing and available to give assistance outside the classroom.
- ❖ The level of feedback on graded assignments is appropriate.
- ❖ How would you rate the instructor's overall performance?

The scale is 0-4. Numbers are 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 faculty members by the chairman and possibly dean to identify potential problems.

### III. Exit Interview prior to graduation

Dr. Anneberg had conducted, processed, and analyzed an exit interview in October 9, 2007. The questions and the summary of the finding follow:

	Questions	Results and Analysis October 09, 2007	Results and Analysis October 14, 2008
1	What is your career plan after your graduation from LTU?	100% have work plans [two are specific: Honda Corp and embedded software engineer]	100% employed or grad school, 62.5% job, 37.5% school
2	What courses, programs, labs, projects have prepared you most for your career plan?	Tech Electives, upper level classes, Circuits 1, Circuits 2, Digital Electronics and lab, Advanced Digital Electronics and lab, Embedded and lab, all of them, C/C++	100% mentioned one or more: classes: Electrical Machines, Intro to Elec Sys, Digital, Micro, Programming classes, operating systems, Comm Sys, EMF, Control, ACAL, Electronics lab, Circ 1&2, calc 1, process control, coop, electronics and lab, micro, digital, embedded, electronics, controls, acal, all.
3	In how many 'team projects' have you participated in at LTU?	Team leader, Senior projects	senior projects, 100%
4	Have you taken the Fundamentals of Engineering [FE], Professional Engineering [PE] or other standardized engineering tests outside the school?	75% plan to take it within a year.	75% yes, 25% no
5	Have you attended any non-technical, societal or community activities as an LTU engineering student?	75% no, 25% yes [SWE, Chi Omega Rho]	50% yes, 50% no
6	Are you aware of engineering affiliations or societies related to your major?	100% yes	100% yes: IEEE, Eta Kappa Nu, SHPE [hispanic engineers], SWE
7	Have you participated in any significant learning/working experiences - outside or required course actives - to enhance your engineering abilities?	50% yes: work every day, internship with DCX	37.5% no, 62.2% yes - jobs and coop

## **B. Faculty**

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

- Dr. Richard Johnston – department chair, oversees the department’s CQI efforts, and organize the IAB.
- Dr. Lisa Anneberg – computer engineering subcoordinator, several courses coordinator, and graduating senior exit interview.
- Dr. Rakan Chabaan - several courses coordinator and alumni survey.
- Dr. Mike Cloud – Coordinator of entire department CQI efforts.
- Dr. Robert Farrah - courses coordinator.
- Prof. Ron Foster - courses coordinator.
- Dr. Mazin Sliety – several courses coordinator and employer survey.

## **C. Alumni**

Alumni survey report is in progress.

## **D. Employers**

An interview is typically arranged with high level personnel in several companies that hire LTU electrical engineering graduates. The objective is to determine how well-trained the LTU engineers are compared to engineers from other universities. High level personnel in eight companies were surveyed, covering a two-year period from 2007 to 2008. A total of ten questions are included in the survey, covering outcomes 1 through 7, and 9. The response to the survey was very positive. All questions are ranked from 0 (not satisfactory), 1 (Satisfactory), 2 (Above Average), and 3 (Exceptional). Summarizing the results, all respondents rated each survey question on average between 2 and 3, indicating they are very satisfied with the overall performance of the LTU graduates. The average ratings ranged from 2.12 to 2.62, an overall good response. One of the employer stated “We are very happy with LTU graduate performance and his work ethics. He is a dependable engineer who can work independently”. The ECE department is striving to keep the practical abilities of graduating student’s high-quality. A summary of Employers responses is listed in Table 1 (see attachment III). This survey done every three years.

## **E. Industrial Advisory Board (IAB)**

Several of our advisory board members were present in our annual IAB meeting which was held on November 17, 2009 in room C406. The goal was to address our current program educational objectives based on the needs of the program’s various constituencies:

To graduate electrical/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

Educational objectives were assigned, and each group reported as follows:

- *Group 1 – Objective 1:* Doede, Farrah, Foster, Potochick, Zorka  
Proposed the addition of the word “engineering” before the word “citizens”
- *Group 2 – Objective 2:* Cloud, Howell, Livernois, Singh, Will  
Proposed a full replacement for objective 2: are able to competently undertake and complete diverse engineering projects in global industries
- *Group 3 – Objective 3:* Chabaan, Fuhrman, Gerhart, Kenaya, Masrur  
Supplied possible meanings for objective 3, but suggested no changes in the wording
- *Group 4 – Objective 4:* Anneberg, Kolasa, Sliety, Sweet  
Considered objective 4, but suggested no changes. The audience suggested “graduate and professional studies” instead of “graduate study”, and we may want to consider that.

The above suggestions will be discussed during department meeting.

### **Conclusion and Future Plan**

The LTU Electrical and Computer Engineering department will continuously improve, and has a detailed plan outlined for accomplishing this task (see attachment IV). 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 the LTU-ECE department remain responsive to the changing environment. The assessment policies put in place assure that the department will not “let its guards down” after the 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.

## Attachment II

Anneberg	Chabaan	Cloud	Farrah	Foster	Johnston	Sliety
EEE2123 Ckts&Electr	*EEE4514 CtrlSsy&Lab	*EEE2114 Circuits (*)EEE2111 Ckts Lab	EEE4243 EmbedSys EEE4241 EmbSysLab	*EEE3011 IntrECEProj	EEE3422 AdvCmpAps	*EEE1002 IntroECE
*EEE2214 Dig&Lab	EEE45583 Instr&sens	EEE3123Bio (*)EEE3124 Sig&Sys EEE3121 Sig&SysLab	EEE4253 CompArch1	*EEE3233 Micropoc *EEE3221 MicroPLab	EEE3513 IntroElecSys EEE3511 IntroElecLab	(*)EEE3314 Electronics (*)EEE3311 ElectrLab
EEE3223 AdvDig EEE3221 AdvDigLab	EEE4523 EEE5524 ModCtrl	EEE3414 Electromag	EEE5204 AdvCpArch	*EEE4811 EEProj1 *EEE4822 EEProj2 *EEE4831 CmpEProj1 *EEE4842 CmpEProj2	EEE4133 ElecMach EEE4131 ElecMacLab EEE5134 ElcMacXfmr	EEE4323 AdvElectr EEE4321 AdvElecLab
EEE4263 CmpNtwrk EEE4261 NtwrkLab EEE5364 CpNwkGrad	EEE4533 EEE5534 DigCtrl	EEE4423 CommSys	EEE5284 ParArch	*BME1002 Intro to BME	EEE4313 PwrElec EEE5314 PwrElec	EEE5444 DigComm
EEE4273 RealTimeSys	EEE6524 Nonlinear & Optimal Ctrl	EEE4433 Antennas	EEE5324 NtwrkSynth	BME3201 Intro to BME Proj	EEE4343 ElecNoise	EEE5654 DigSigProc
EEE5264 AdvMicro	EEE6534 AdaptiveCtrl	EEE4713 OptoElectr		*BME4012 BME Proj 1 *BME 4012 BME Proj2	EEE4543 ProcCtrl EEE4511 ProcCtrlLab EEE4553 PLCs	EEE5784 CommCkts
EEE5564 Interfacing & Ctrl of Robots		EEE5554 Artificial Intelligence			EEE5144 EngrAnal	EEE6444 SDR
EEE5624 VLSI Sys Design		EEE6784 AdvComm Theory			EEE5144 PwrDistSys	
					EEE6704 EngrOptim	

## Attachment III

Table 1: Employers Responses

Employer name	Q.1	Q.2	Q.3	Q.4	Q5	Q6	Q7	Q8	Q9	Q10
Robert Bosch LLC	3	2	2	2	1	2	3	2	1	2
General Dynamics Land Systems (GDLS)	3	2	3	3	2	3	2	3	3	3
Harman/Becker Automotive Systems	1	1	0	1	1	0	0	2	1	1
LAWRENCE TECH University	3	3	3	3	3	3	3	3	3	3
Continental Corporation	2	1	2	2	2	2	1	2	2	2
Agilent Technologies	3	3	3	3	3	3	3	3	3	3
HARADA INDUSTRY of AMERICA	3	3	3	2	3	3	3	3	3	3
Masco Corporation	3	2	3	2	2	2	2	3	3	2
<b>Average</b>	<b>2.62</b>	<b>2.12</b>	<b>2.37</b>	<b>2.25</b>	<b>2.12</b>	<b>2.25</b>	<b>2.12</b>	<b>2.62</b>	<b>2.37</b>	<b>2.37</b>

## Attachment IV

### Assessment Schedule

<u>Constituency</u>	<u>Type</u>	<u>Timing</u>
student	classroom, direct	odd-numbered academic years
	classroom, indirect	even-numbered academic years
	exit interviews	upon petition to graduate
employer		every 3 years
alumni		every 3 years
advisory board		every fall

### Annual Timeline

Week 2	Course coordinators check all current syllabi for compliance with official ABET syllabi.
Week 3	Collated (previous-semester) course survey data and instructor recommendations received by (1) relevant course coordinators, (2) Prof Anneberg, and (3) Reka. Previous-semester direct assessment tests graded and summarized. All syllabi submitted to Reka for distribution to course coordinators.
Week 4	All syllabi have been checked against CQI syllabi by course coordinators.
Week 5	Course survey and direct assessment data archived.
Week 10	CQI syllabus changes proposed by course coordinators and subjected to faculty vote.
Week 13	Classroom survey forms and direct assessment tests made available to faculty.
Week 14	All revised CQI syllabi archived for the semester.
Week 15	Classroom survey and direct assessment tests administered.
Week 16	(Finals week.) Ungraded direct assessment tests returned to Reka.

Once a Year: everything else, at Annual Program Review

1. Examine/review
  - (a) graduating senior exit survey data
  - (b) alumni survey and/or focus group data
  - (c) employer and coop survey forms
  - (d) IAB comments/suggestions
  - (e) faculty comments/suggestions
2. Revisit program objectives and outcomes.  
Get progress report on status of self-study report.

**Engineering Technology Department**  
2008-2009 Assessment Report

## **1. Program Educational Objectives, Outcomes and Accreditation Status**

The Engineering Technology Department is assessing its classes to assure that they meet the requirements for Higher Learning Commission and the Accreditation Board for Engineering and Technology (ABET). The department is addressing the requirements for ABET accreditation. The department is responsible for four associate degree programs and two bachelor programs. The associate degree programs are:

- Associate of Science in Communications Engineering Technology (ASComET)
- Associate of Science in Construction Engineering Technology (ASCET)
- Associate of Science in Mechanical Engineering Technology (ASMET)
- Associate of Science in Manufacturing Engineering Technology (ASMfgET)

The bachelor degree programs include:

- Bachelor of Science in Engineering Technology (BSET)
- Bachelor of Science in Construction Management (BSCM)
- Bachelor of Science in Audio Engineering Technology (BSAET) (new in the Spring of 2009)

The department also offers a certificate program in:

- Alternative Engineering Technology (new in the Fall of 2009)

The faculty within the department includes:

Kenneth Cook	Department Chairman
William White	Associate Professor
Sabah Abro	College Professor
Jerry Cuper	Advisor & Adjunct Professor
Tamera Dafoe	Adjunct Professor
William Kuziak	Adjunct Professor
Anthony Kelso	Adjunct Professor
Ahmad Kassem	Adjunct Professor
Robert Bernhard	Adjunct Professor
John Kushner	Adjunct Professor
Greg Yawson	Adjunct Professor
Wendell Tackett	Adjunct Professor
Delores Infante	Adjunct Professor
Parviz Ahmadi	Adjunct Professor
Scott Buck	Adjunct Professor
Keith Toro	Adjunct Professor
Mike Livernois	Adjunct Professor
Craig Menuck	Adjunct Professor
Ameer Bishay	Adjunct Professor
Frank Carnovale	Adjunct Professor
Harold Friedman	Adjunct Professor
James Swain	Adjunct Professor
Therese Cline	Adjunct Professor



Mark Ferone	Adjunct Professor
Heidi Eichbauer	Adjunct
Professor Bryce Grevenmyer	Adjunct
Professor Louay Joulakh	Adjunct
Professor	
Sara Malloy	Adjunct Professor
Steve Nwabuzor	Adjunct
Professor Shiva Palaniswami	Adjunct
Professor Naleem Gopi	Adjunct
Professor	

The support staff includes:

Angelina Card	Administrative Assistant
Tom Powder	Lab Technician

## **2. Assessment Activities and Results**

### **Assessment Activities**

During the 2008-2009 academic year the department seemed to agree that the use of pre-tests and post-tests yielded minimal data. The procedure was to give a small test at the beginning of the semester that is based upon some of the questions at the end of the course. This is recorded and compared to answers at the end of the semester.

While it does give some usable data, it is minimal. Informally, it was challenged by almost all of the faculty, both fulltime and part-time. The majority of the departmental instructors agreed that it is blatantly obvious that someone would do better after taking the course than before. In discussing this with colleagues from other departments, there tends to be agreement to support the notion as well. Professor White is running the pre- test/post-test for the last time, and his data supports the same conclusions.

### **Program Educational Objectives, Outcomes, and Accreditation Status (for all programs in the Department)**

During the 2008-2009 academic year, it was agreed upon that the BSET degree program should be ABET accredited. It has never been accredited by ABET and this needs to be remedied. This requires a tremendous amount of work to be put forth by all members of the department. Writing and format is important. Faculty members have been writing their objectives, rubrics, and outcomes in the manner that follows that required by ABET. First and foremost, all documentation must have the same font, font size, and the same ABET format. This should match throughout the college of engineering.

The 2008-2009 year found increased focus on assessment and accreditation. The faculty members participated in a number of activities based upon the requests of the university and the assessment committee.

- a. Team work was examined within the classroom setting. Leadership was also examined. Initially, the response was weak. Team work was followed through with a good level of success in most of the classes. The department was in

agreement that if there was teamwork within the classroom then it was possible to examine leadership to see if any examples existed. Without successful team work, it is difficult, if not impossible to measure leadership.

- b. The question of writing within the classroom was again asked. One of the first areas of assessment was to have faculty who are members in the Engineering Technology department perform writing assessments of students within their classes. Professor Cook has students develop a thesis document that records the work of the Senior Projects class. Professor White, in his manufacturing processes classes, has students write a team paper that addresses new and innovative processes in manufacturing. The teams consist of three students. The students will jointly write a paper ranging from eight to fifteen pages. They will also give an oral presentation based on the material developed while writing the paper. Written rubrics have been developed to standardize the grading processes.
- c. Writing across the curriculum is being supported. Students are required to take the writing exam COM3000. It is a graduation requirement for all students. Students who have 80 credits before the Spring of 2005 are exempt from the examination. Students are encouraged to take the examination when they have completed at least 60 credit hours and no more than 80 credit hours. If they haven't completed the exam by then, they cannot enroll for the Junior/Senior Elective, which is required for graduation.
- d. Additional individually designed assessment instruments have been developed by Professor Ken Cook. He carries on a program of continuous quality improvement. Feedback from the previous semester is used to improve classroom technique and assessment applicants. Professor Cook has built a large database that gives him a chance to evaluate how students perform under classroom pressures. In TIE4115, Senior Projects, students write a mission statement, quality statement, an abstract of their product, and a product manual. Students also perform activities such as designing and building a product. They assemble a major document that chronicles the whole project from initial conception to final launch of the product.
- e. Written and oral communication was also examined in TIE2063, Manufacturing Processes 1, and TIE2153, Manufacturing Processes 2. TIE4115, Senior Projects have writing and presenting as an integral part of the classes. TIE2063 and TIE2153 have, as part of the course, an assigned paper that is to examine something new and/or innovative within the world of manufacturing. They identify a good topic and then write an abstract about the topic. If it is approved by the instructor, the teams can then go out and research their topic. Students must also do a presentation to the rest of the class. They must divide the work and help with all parts of the presentation. The students are evaluated by their peers within the group as well as in the class. They are required to present a group presentation which cannot exceed twenty minutes. They also evaluate themselves. Like the manufacturing processes classes, the teams are made up of groups of three. Writing and presentations are required. They are evaluated by their peers as well as advisory board members. They are video recorded and evaluated by faculty members of the English department.

- f. In TME4103, Engineering Materials 2, students are required to write a summary on an article (internet, newspaper, magazine, work-related, etc.) of an engineering project that went wrong due to poor engineering material(s) selection that is a minimum of three pages.
- g. In TIE2123, Project Management, students write a paper on why they should get the Project Management Institute Certification. Additionally, three exams include essay questions.

The BSCM degree is also headquartered in the department as well. The faculty members are all adjunct and with the present economy there is a great availability of good teachers. Students respond well to our adjunct faculty and the program is quite popular. There is a joint program between the college of Architecture and the Engineering Technology program for a dual degree program. The program involves obtaining an Architecture degree and with approximately one additional year of studies, they can earn a BSCM as well. Students can enter the program as beginning students and pursue the BSCM degree. They can also start in the ASCET program and transfer into the BSCM program. Student enrollment has improved by nearly 100% over the previous year.

### **3. Action Plan for 2008-2009**

- Most of our faculty members, both fulltime and part-time, have their goals and objectives written in ABET format. All of them will be written in the correct format by Spring of 2009.
- New faculty members will be assisted in the development of goals and objectives, and veteran faculty will have their documentation evaluated and weaknesses will be strengthened.
- Copies of How to Write and Use Objectives, Classroom Assessment Techniques: a Handbook for College Teachers, by Angelo and Cross, will be available in the Engineering Technology Department. How to Write and Use Instructional Objectives, by Gronlund, will be available for instructional support.
- Heaviest of the actions are activities that are written in ABET format.
- The department is also preparing to set up an accreditation program for the BSCM degree program. The American College of Construction Education (ACCE) is the agency that will accredit the Construction Management degree program. The target date for the Construction Management accreditation will tentatively be in Spring 2011.
- The Undergraduate Assessment Plan is being used to give direction to our program. Goals have been determined and most are from the University goals list. We have identified an additional goal that was not part of the University goals list. Supporting program objectives are identified by a letter system. The letters are listed as “A” through “L” in the section following the Undergraduate Assessment Plan.
- The major portion of the departmental action plan is to finish filling the Undergraduate Activities and Assessment Plan.

## Undergraduate Assessment Plan

Goals (University)	Supporting Program Objectives/Outcome	Assessment Tools	Metrics/Indicators	Admin Timeline	Loop/Close Timeline
I. 1. Graduates will demonstrate Knowledge and expertise in applying this knowledge , in their fields	A & C	Assignments, examinations, project work, documentation, class interaction	Means and std. deviations for quizzes & tests		
1. 2. Graduates will demonstrate effective use of technology and the ability to apply is in their fields	B & D				
II. 1. Graduates will be literate and skilled written and oral communication	G	COM3000, Assignments, papers			
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	I & J	Assignments, class interaction			
II. 3. Graduates will be aware of the foundations and development of American society	L	LTU core curriculum			
II.4. Graduates will demonstrate competence in mathematics in the use of the scientific method and laboratory technique	B	Senior project			
II.5. Graduates will demonstrate creativity and critical thinking, as well as analytical and problem solving skills constituent with the technological focus of the University.	C & F				
III. 1. Graduates will have had experiences that promote a high level of professionalism and integrity, responsibility, decision making, confidence in approaching opportunities	I				
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.	J				
III. 3. Graduates will have had experiences that promote the ability to analyze unfamiliar situations, assess risk, and formulate plans of action.	F				

III. 4. Graduates will have been made aware of the importance of lifelong learning.	H				
III. 5. Graduates will have had experiences that promote a global and societal perspective.	J				
IV. 1. Graduates will have had defined roles in teamwork experiences in which both process and progress are monitored.	E				
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 the team's product, and evaluate one another's contribution to the team.	E				
IV. 3. Graduates will have had team experiences in which they practice making decisions, reaching consensus, and resolving conflicts.	E				
V. 1. Graduates will have had opportunities to learn the value of contributing to their community and to society.	I & L				
V. 2. Graduates will have had opportunities to develop personal values as the foundation of integrity and professional ethics.	I				

### Educational Outcomes

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

- A an appropriate mastery of the knowledge, techniques, skills, and modern tools of their disciplines
- B an ability to apply current knowledge and adapt to emerging applications of mathematics, science, engineering, and technology
- C an ability to conduct, analyze, and interpret experiments, and apply experimental results to improve processes
- D an ability to apply creativity in the design of systems, components, or processes appropriate to program educational objectives
- E an ability to function effectively on teams
- F an ability to identify, analyze and solve technical problems

- G      Gan ability to communicate effectively
- H      a recognition of the need for, and an ability to engage in lifelong learning
- I      an ability to understand professional, ethical and social responsibilities
- J      a respect for diversity and knowledge of contemporary professional, societal and global issues
- K      a commitment to quality, timeliness, and continuous improvement L
- an awareness of foundations and development of American society

This document is a measure of what has been accomplished during the 2008-2009 academic year. The matrix that is shown is not yet complete but the documentation is growing. It is a living dynamic document. It was written by the whole department, not just a department chair or an assessment committee member. The department is working as a team to have complete accuracy. This is sometimes difficult to accomplish, but when completed it is from a department that has complete consensus.

***Mechanical Engineering Department***  
2008-2009 Assessment Report

## **1. Program Educational Objectives, Outcomes and Accreditation Status**

The Department of Mechanical Engineering

The following are the current program objectives for the Mechanical Engineering program at Lawrence Technological University:

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 following are the program outcomes for the Mechanical Engineering program at Lawrence Technological University:

- 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/or 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 Results**

As part of oral communication assessment, student's presentations in EME4222, Engineering Projects 2, were videotaped. These presentations will be used by both the oral communication committee and the ME Dept. to assess oral communication.

For the assessment of graduate programs, initial draft assessment plans were developed for all of the graduate programs in the ME department, however, these plans have not been implemented.

### **3. Action Plan for 2008-2009**

ABET assessment data will be collected for outcomes a thru k. In addition, graduate assessment plans will be finalized and assessment data will start to be collected for the graduate programs.



**College of Management**
**DBA Program**

<b>PROGRAM LEARNING OUTCOMES</b>	<b>ASSESSMENT MEASURES</b>	<b>ASSESSMENT TOOLS</b>	<b>BENCHMARKS/ STATED GOALS</b>	<b>ACTUAL RESULTS</b>	<b>RECOMMENDED CHANGES AND IMPROVEMENTS</b>
Provide graduates with an advanced knowledge base beyond the MBA that will enable them to be effective leaders.	Qualifying Papers  Dissertations	Qualifying Papers Rubric and pass/fail rates  Dissertation Rubrics and pass/fail rates	90% pass rate on qualifying papers  75% of cohort 3 students begin their dissertations in 2009  Two cohort 1 and four cohort 2 students complete their dissertations in 2009	Papers will be submitted on May 8, 2009  Students will begin their dissertations following completion of their qualifying papers in May 2009  None have completed their dissertations at this date	The Comp Exams were replaced with Qualifying Papers that serve as a bridge from coursework to the dissertation phase of the doctoral program.
Provide graduates with the skills necessary to plan, conduct and apply independent research to the practice of management.	Student Papers/ Presentations at Management sponsored Conferences	Number of accepted student papers/ presentations conducted at Management sponsored Conferences	10 student papers/ presentations submitted in 2009	3 papers submitted and 1 accepted at this date	The research courses will be revised to ensure students acquire adequate training and the needed skills to conduct both quantitative and qualitative research. There will be greater emphasis on regression analysis and on organizational research and measurement in the research courses. Professors will be evaluated and decisions made for continued teaching based in part on end of term evaluations The professor receiving negative feedback on the end- of- year evaluation has not been invited back.

Ensure students are receiving quality instruction, individual attention and outstanding service from professors qualified in the theory and practice of management.	End of Term Evaluations	Confidential student evaluation forms	100 percent positive feedback	The feedback was very positive with one exception. As with last year, the high quality of instruction and individual attention given to students were noted. The negative feedback for the one course was that the instructor attempted to cover too much material too quickly, and did not provide adequate feedback on assignments.	
Provide graduates with an understanding and appreciation of global cultural and institutional diversity so that they can be effective leaders in multi-cultural organizations.		Benchmarking against other DBA and Ph.D. programs	Revise the DBA curriculum to achieve the stated learning outcomes related to effective leadership in multi-cultural organizations.		<p>The DBA curriculum is being revised to provide greater depth of concentration in management, and more focus on global issues and technology. Several courses will be deleted and new courses introduced. The content of most courses will be enhanced with the introduction of new materials on globalization, technology, sustainability and on the latest research findings in leadership and management. More focus is also being placed on the practical applications of management theory and principles. New 2-credit hour seminars in specialized fields will also be introduced into the curriculum.</p> <p>Increased emphasis in the leadership and</p>

Provide graduates with insights and capabilities for introspection and self-reflection for continuous professional development and life-long learning.					management classes is being placed on developing the full leadership potential of the student through self- assessment and awareness, and through a variety of cross-cultural leadership experiences.
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### **DBA Measurable Program Goals for 2008-2009:**

Following is a summary of the measurable goals for the DBA program for 2008-2009:

1. Three DBA students will complete their dissertations in 2009.
2. A pass rate of 90% on the qualifying papers.
3. For cohort 3, 75% of all students who pass their qualifying papers convene a dissertation committee and begin working on their dissertations within 90 days of completing their qualifying papers.
4. Ten student papers submitted, published or presented in 2008-2009.
5. Receive zero negative comments on course evaluations related to course expectations and feedback on assignments.

**DMIT Program**

<b>DMIT Outcome (State if Program Outcome [PO] / Student Learning Outcome [SLO] / Effectiveness Measure [EM])</b>	<b>Desired Outcome/Result (Cite Measurable Criteria for Success)</b>	<b>Means of Assessment (Evaluation Tool)</b>	<b>Actual Outcome/Result (Cite Data Findings)</b>	<b>Use of Results (Strategies to Improve or Continue Success)</b>
<p>Theoretical outcome – define and teach the concepts and principles in IT Management.[PO] [SLO] Informational outcomes</p> <p>– gain knowledge of leading-edge trends in IT management in global business environment.[PO] [SLO]</p> <p>Skill-sets – impart leadership, managerial and technical competencies that students should have upon completing the program. [PO] [SLO]</p> <p>Informed of practice – knowledge and awareness of best practices found in business and industry in the field of IT Management. [PO] [SLO]</p>	<p>DMIT students are able to write in good technical style.</p> <p>DMIT students are able to complete and present work on individual assignments, team projects and research to peers and sponsors.</p> <p>DMIT students pass coursework with above 3.3 GPA.</p> <p>DMIT students attain candidacy after all coursework is completed</p>	<p>Individual and team assignment papers.</p> <p>Individual and team presentations during program.</p> <p>Presentations during Seminar 6 of MIS7813.</p> <p>DMIT Comprehensive Examinations (2 exams of 10 hours duration)</p>	<p>Assessment report of each course.</p> <p>Individual and team presentations in 12 courses</p> <p>15 candidates</p>	<p>Maintain emphasis on good writing competencies.</p> <p>Maintain emphasis on communication skills; videotape key presentations for review with students.</p> <p>Maintain and improve support for student preparation for C.E.</p>
<p>Satisfaction -ensure that students and their sponsors are satisfied with DMIT curriculum [EM] Ensure that students are satisfied with pedagogy and didactics [EM]</p>	<p>Students rate the course content as appropriate and relevant.</p> <p>Students rate pedagogy appropriate.</p> <p>Students rate instructors as well-prepared and effective.</p> <p>Sponsors continue to support tuition.</p>	<p>All coursework:</p> <p>Mid-term evaluation</p> <p>Term-end evaluation</p> <p>Major Track coursework</p> <p>Pre-course Knowledge Assessment.</p> <p>Post-course Knowledge Assessment.</p> <p>MIS7823 and MIS7843 updates</p>	<p>- 80% of students rate the course content as appropriate and relevant</p> <p>- 70% of the students rate the instructor as effective</p> <p>- Tailoring of these courses to support entrepreneurship initiatives</p>	<p>Continue to improve.</p> <p>Interview sponsors and use feedback to update program.</p>

Applied research- Develop competencies to perform applied research [SLO] Develop ability to conduct advanced research towards innovative solutions [SLO]	Students complete their doctoral dissertation.	Doctoral Dissertation is evaluated by DisCom. Dissertation is defended in an open forum.	8 completed dissertations	Continue to build a research culture in the DMIT. Build experience in leading research and supervision. Improve completion rate of dissertation research projects.
Share research - deliverables with peers in academia, commerce and industry [EM]	Students present peer-reviewed papers at conferences  Research papers accepted in technical journals  Graduate participation in research seminars  Student participation and doctoral conferences	Papers are refereed and appear in Conference Proceedings  Papers are refereed and appear in journals  DMIT peer evaluation Peer review by doctoral students  Peer review by doctoral students	6 Conference presentations 3 journal articles  7 Graduates gave research presentations at DMIT Research Seminar, Dec.2008  No participation this period	Increase student research output.  Continue tradition of DMIT Research Seminars.  Continue participation in doctoral conferences.
Share research – Faculty deliverables with peers in academia [EM]	Faculty papers peer reviewed and accepted for conference presentations Faculty papers accepted for technical journals	Presentations made at conferences  Papers appear in technical journals	Steenkamp: 3 conf. presentations Steenkamp: 3 articles published in journals	Increase faculty research output.
Create a tradition of excellence in doctoral education in IT Management [PO]	High level of student satisfaction with DMIT.	Noel-Levitz Survey	90th percentile	Maintain satisfaction level

Collaborate with industry, and professional bodies [EM]	Participation in research studies and initiatives	Number of completed collaborative projects	1. 1xAPQC projects 2. Member of The Open Group Architecture Forum and TOGAF9 Work Group 3. Host ABPMP Mini- conference	Continue collaboration with colleagues in industry and academia in ABPMP, DAMA, IEEE, GL-SPIN Increase participation in APQC studies Increase participation in The Open Group Architecture Forum, Increase participation in ABPMP Update Curriculum and Syllabi
DMIT community on LinkedIn	Support of DMIT Advisory Board and sponsors  Dr Andreescu created a networking site for the DMIT students and alumni	Bi-Annual meeting  Participation on site	Qualitative feedback about alignment of DMIT curriculum with expectations of practice from DMIT Advisory Board Active participation and sharing of ideas and opinions	

### MEASURABLE DMIT Program Goals for 2008-2009

#### College of Management 2008-2009 Assessment Report

Following is a list of the measurable goals for the DMIT Program for 2008-2009 stated in 2008:

1. Number of DMIT students expected to complete their dissertations: 9; Actual: 5
2. Cohort 4 and 5 students to write their Comprehensive Examinations; a pass rate of 80% on the Comprehensive Examinations to be achieved.
3. Actual: August 2008 - Major Track: 6; Research Methods Track: 3
4. Actual: February 2009 – Major Track: 3; research Methods Track: 2
5. Number of students doing dissertation research: 17+. Actual: 18 with 4 research student inactive.
6. Students expected to present conference papers and journal articles in 2008-2009: 9+. Actual: 13
7. Obtained positive feedback on course evaluations related to learning, course delivery and assignment feedback.

**MBA Program**

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

COM Mission: The development and delivery of distinctive management programs that help maximize our students' human potential.

COM Objective Create a learning experience that is focused, flexible, friendly, and fun.

<b>Unit Objective</b> <i>(State Program Objectives/Outcomes)</i>	<b>Benchmarks</b> <i>(Cite Measurable Criteria for Success)</i>	<b>Means of Assessment</b> <i>(Evaluation Tools)</i>	<b>Actual Outcome/Result</b> <i>(Cite Data Findings)</i>	<b>Realized Outcomes</b> <i>(Benchmarks met?)</i>	<b>Recommendations</b> <i>(Strategies to meet stated benchmarks)</i>
<u>3 Key Areas:</u>  Business Knowledge  Application to Business Situations, Problems, and Environment  Development of interpersonal and professional skills	Strategic Mgt Rubric and pass/fail rates  Exam counts from 10 to 25 percent of final course grade in MGT 6063  75% of students to achieve a grade of 85% or better in Capstone Exam	Strategic Mgt Capstone Exam	95% of MBA graduating students obtained a grade of 85% or better*  *This does not include Dr. Eshbach class because the data submitted showed an average grade of 86% and it does not include Vancouver where there was only seven students and English is a second language (individual results are below).	Yes	Results improved 4% increase last year.  The results stayed nearly the same for the on-line course (87% in 2008).  Overall: Strategic Capstone Faculty should continue to meet with Program Coordinator and other faculty to engage in a community of teaching practices to share resources and experiences that continue with the measurable success.  Specific Recommendations are listed below in the comment area after individual course results.

## RECOMMENDED CHANGES AND IMPROVEMENTS FROM 2007-2008:

### Recommended Changes:

1. Meet with instructors teaching the course to review the results and to ensure the following areas are emphasized: Financial planning

Risk Analysis

Strategic

Change

Strategic Implementation

**Action:** Worked with strategic capstone faculty (in-person and communicated via email and phone calls) to discuss emphasis of the above subjects area in their courses.

2. More focus on *contemporary strategy* drives such as:

- Blue Ocean Strategy
- SVA
- Balanced Scorecard
- Strategy Maps
- SOAR framework

**Action:** Strategic Capstone faculty integrated from four to five of the above recommended *contemporary strategy* theories and practices into their courses during the Fall 2008 – Winter 2009 terms. Changes were reflected in course materials, case studies, assignments and syllabi.

3. Follow-up meeting with faculty scheduled for Feb. 2009

**Action:** On January 29, 2009, met with all available adjuncts (including the strategic capstone faculty) to discuss state of the College of Management, training and development needs, and program updates. There was one-on-one follow-up (in phone or in person) to discuss changes to the MGT 6063 courses.

4. MBA Foundational Core Courses and Concentrations being revised in 2008-2009 to reflect findings.

**Action:** MBA Task Force Committee reviewed and updated MBA Foundation and Core Courses to reflect Program Learning Outcomes. Attached are the Revised MBA Plan of Study and Course Descriptions (updated February 2009).



## **MBA Program: Strategic Management Capstone Exam Results 2008-2009 (Individual Course Results)**

This is the second academic year that the COM fully implemented the MBA Strategic Capstone Exam. The exam is an essay and short-answer based test using a short scenario that examines six core areas related to prerequisite coursework required prior to taking the capstone Strategic Management course. The exam demonstrates the student's ability to analyze, synthesize, plan and execute management processes by responding to and preparing for a strategic management interview. The exam covers:

1. Basic Concepts of Strategic Business Planning
2. Strategic Planning at the Corporate Level
3. Roles of SBU Managers and Functional Executives
4. Analysis of External Environment and Assessment of Internal Strengths and Weaknesses
5. Components of Business Plan
6. Execution of Business Plan

The following MGT 6063; Strategic Capstone courses were taught in 2008-2009 and the MBA Capstone Results are:

### 2008

Eshbach (On-Line):	Average grade of 86% was achieved
Benson (Southfield):	90% of students obtained 85% grade or better*
Emmons (CTC):	90% of students obtained 85% grade or better

### 2009

Emmons (TACOM):	100% of students obtained 85% grade or better (2008: Emmons: 93% of students obtained 85% grade or better)
Emmons (Vancouver)*:	60% of students obtained 85% grade or better (Two students earned: 80% and One student earned 67%)
Emmons (Traverse City):	100% of students obtained 85% grade or better (2008: Meda: 80% of students obtained 85% grade or better)

\*English was second language.

For detail individual instructors' recommendations as to what they intend to do to continue improving their course please refer to their individual OA reports available with Lori Remlinger at the College of Management.

**Overall Recommendations Fall 2009-2010:**

1. MBA Strategic Capstone faculty should meet with the MBA program coordinator, outcomes assessment coordinator and the dean to best decide on the appropriate level of detail to report regarding the results and to assist them in meaningful ways they can make changes and improvements for the Strategic Management course. In addition, the meetings will provide an opportunity for faculty to share lessons learned and best practices with other faculty teaching the course.
2. Encourage the LTU finance faculty to possibly record a “mini” lecture around ROI and simple ratio analysis and financial concepts for students to refresh themselves once they get to MGT 6063 course.
3. Case study assignments needs to include a strategic audit with focus on all functional areas especially the financial health of the organization as it relates to current strategy and future strategic direction and strategy.
4. Given this is one of the students’ final required courses, strategy capstone faculty (plus other faculty) should consider two “post-course reflections questions” that were designed and used by Professor Emmons:
  - 1) List the 5 most valuable ideas or experiences you had during this class. With each item listed, explain why this item held value for you at this point in your educational experience and career.
  - 2) I would like you to evaluate this course as well as my instruction. Please write a paragraph about what worked well for you in this course and/or with my instruction. Some areas to consider: pace, the activities, level of feedback, design and delivery of course and Blackboard Resources provided. Also, write a second paragraph about your recommendations for improving this course for future students.

**MSIS Program**

**Review of Annual Goals and  
Outcomes**

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

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

COM 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.

<b>Unit Objective</b> <i>(State Program Objectives/Outcomes)</i>	<b>Benchmarks</b> <i>(Cite Measurable Criteria for Success)</i>	<b>Means of Assessment</b> <i>(Evaluation Tools)</i>	<b>Actual Outcome/Result</b> <i>(Cite Data Findings)</i>	<b>Realized Outcomes</b> <i>(Benchmarks met?)</i>	<b>Recommendations</b> <i>(Strategies to meet stated benchmarks)</i>
MSIS – The students understand the underlying concepts of each of the areas of IT, as represented by the core classes of the program.	The test scores of the students on end-of-semester tests demonstrate that the students learned the content of each of the core classes tested. This would be determined by evaluating the significance of the improvement on the test scores between the PreTest and the PostTest.	A pre and post multiple choice test was administered in each of the core classes tested during the Spring 2009 semester. The tests for MIS6113 & MIS6123 were 30 questions, and the tests for MGT6153 & MIS6153 were 32 questions. An ANOVA test was used to determine whether the scores on the PostTests were significantly higher than the scores on the PreTests.	The statistical tests demonstrated that there was a significant improvement in the students' level of knowledge at the completion of each of the core classes. The improvement was statistically significant beyond the 0>01 level for each of the courses tested.	The desired outcomes were attained in each of the four core classes tested.	The MSIS program is currently under review by the IS faculty. It has not been determined at this point in time the exact structure of the program. However, some changes will be made in order to keep the program and classes current with IT technology. See the summary below for more details.

**MSIS Program Summary of Changes and Improvements:**

The MSIS program is currently being reviewed and is on a schedule to potentially implement any revisions in the program in January 2010. The review is looking at the particular technologies that should be utilized in each class, with the possibility of using those technologies in the offering of the MSIS program online.

There is consideration of moving from doing pre & post tests in each of the core classes to a capstone case/exam to test the overall knowledge of the students similar to the capstone case used in the MBA program. The capstone case would be an integrative case in order to test the overall knowledge improvement of each of the students.

**MSOM Program**

<b>PROGRAM</b>	<b>PROGRAM LEARNING OUTCOMES</b>	<b>ASSESSMENT MEASURES</b>	<b>ASSESSMENT TOOLS</b>	<b>BENCHMARKS/ STATED GOALS</b>	<b>ACTUAL RESULTS</b>	<b>RECOMMENDED CHANGES AND IMPROVEMENTS</b>
MSOM	To learn the concepts and techniques necessary for successfully managing the operations of industrial and business entities.	Capstone course pre and post essay question test	A scenario of a business situation was presented to the students, for which the students were asked to write an essay describing the actions they would take as the firm's COO. The same test was administered before and after the capstone course.	The desired outcome is for the scores to be in the "B" range with some improvement in the post-test compared to the pre-test.	The result of the scores were as follows: Avg pre-test score = 83.4; Avg post-test score = 86.6.	The scores are at the expected mark. The improvement is also reasonably good. However, this is the first time this tool has been administered. Hence, I would like to get few repetitions of this tool before I make any conclusions. However, I plan to make the next year's question to be generally open-ended as this one but also add some specific components to test the knowledge of the students to some commonly accepted industry procedures.

**MSOM Measurable Program Goals for 2008-2009:**

The goals for this year and the degree to which they were accomplished are given below:

1. Revise the Pre & Post Knowledge Test to include only conceptual questions and also make the test shorter.  
This was done. We are using a new assessment tool as described above. The tool is an open-ended essay question, administered before and after the capstone course.
2. Revise the "qualitative" question so the responses are somewhat structured while being open ended.

The development of a new assessment tool took care of this goal as well as the previous one.

3. As part of the College strategic initiative in assessment, develop some goals and related tools to make the assessment of the MSOM program truly assess the program independent of the ability of the student in learning the course material.

This was partly accomplished by adding a new elective to the MSOM program – titled Global Supply Chain Management. This topic is currently very popular and is getting to be a standard in most operations management program. However, the review of the MSOM program is on-going and will continue next year also.

#### **MSOM Measurable Program Goals for 2009-2010:**

1. Continue to administer the new assessment tool and set a goal of at least 10% improvement in the average scores.
2. Continue to review the program and make the necessary changes to keep the program current and relevant to the manufacturing industry as a whole. (Note: this is not measurable quantitatively, but is important to be included here.)

**BSIT Program**

<b>PROGRAM LEARNING OUTCOMES</b>	<b>ASSESSMENT MEASURES</b>	<b>ASSESSMENT TOOLS</b>	<b>BENCHMARKS/ STATED GOALS</b>	<b>ACTUAL RESULTS</b>	<b>RECOMMENDED CHANGES AND IMPROVEMENTS</b>
<ul style="list-style-type: none"> <li>• Develop a broad business and real world perspective</li> <li>• Plan, design and implement IT solutions that enhance business performance</li> <li>• Develop strong analytical and critical thinking skills</li> <li>• Develop interpersonal communication (oral/written) and team skills.</li> </ul>	ICCP Exam	Exam results and pass/fail rates	<ul style="list-style-type: none"> <li>• 80% of students attempting the ACP Certification will score 50% or higher</li> <li>• 50% of students attempting the CCP Certification will score 70% or higher</li> <li>• 80% of students attempting either certification will achieve passing scores</li> </ul>	<ul style="list-style-type: none"> <li>• 3 Students took the exam in the 2008-2009 AY.</li> <li>• 2 (67%) of the 3 students achieved either or both the ACP or CCP certification</li> <li>• 1 Student (33%) earned both the ACP and CCP</li> </ul>	<ul style="list-style-type: none"> <li>• Encourage students to take the exam immediately after all core courses; the time between the end of the capstone course and exam has an impact on the score students earned. Taking the exam shortly after the capstone course should improve student scores. Students will be reminded in the IT Business Strategies (capstone) course by the instructor and again by the Director at or near the end of this course.</li> <li>• Make additional changes to the courses to ensure greater coverage of the body of knowledge for IT/Business students by comparing the program/curriculum goals and objectives to the IS2002 Curriculum Guide.</li> </ul>

**NOTE:** Indirect measures are also used for each program and include end-of-term evaluations and the LTU Graduating Survey.

## LTU Graduating Survey Results 2007-2008 Mean Scores by College (Scale 0 – 4)

Notes: No BSIT graduates responded to the Graduating Survey. Q25 is additional comments.

	Architecture Bachelor (N=15)	Architecture Graduate (N=4)	Arts & Sciences Bachelor (N=9)	Arts & Sciences Graduate (N=5)	Engineering Bachelor (N=32)	Engineering Graduate (N=14)	Manage ment Grad Certificat e (N=3)	Management Masters (N=17)	Management Doctoral (N=1)
Q5 Programs meeting your learning objectives?	2.93	2.50	2.56	3.60	3.09	3.29	3.33	3.00	4.00
Q6 Preparedness for professional employment?	2.29	2.50	2.56	3.00	3.16	3.29	3.00	3.19	4.00
Q7 Materials/books/equipment you used.	2.57	1.75	2.00	2.80	2.63	3.14	3.33	3.00	4.00
Q8 Faculty knowledge in their fields of specialization.	2.57	2.25	3.22	2.40	3.34	3.79	3.33	3.12	4.00
Q9 Faculty preparation and organization.	2.57	2.25	2.44	3.20	3.06	3.29	3.33	3.12	4.00
Q10 Faculty responsiveness and timely feedback.	2.79	2.50	2.56	3.00	3.03	3.43	3.00	3.24	4.00
Q11 Faculty interest in teaching.	2.93	2.25	2.56	3.20	3.22	3.77	3.33	3.47	4.00
Q12 Instructional clarity in presenting concepts.	2.71	2.25	2.56	3.00	3.03	3.50	2.67	3.06	4.00
Q13 Overall effectiveness of the instruction you received.	2.71	2.50	2.50	3.40	3.06	3.50	3.33	3.00	4.00
Q16 Application of coursework to real work situations.	2.40	1.50	2.00	3.40	2.87	3.38	3.00	3.00	4.00
Q18 Classroom facilities.	1.93	2.25	2.22	2.80	2.10	2.42	3.00	3.13	4.00
Q20 Computer and lab facilities.	2.20	1.50	2.33	3.25	2.03	2.60	3.00	2.75	3.00
Q22 Administration and support staff.	2.20	2.75	2.89	3.20	2.94	3.38	3.33	2.81	4.00
Q24 Studio/lab effectiveness.	2.38	2.00	2.22	3.20	2.60	2.82	3.00	2.90	-
Q26 Preparation in computer skills.	2.93	2.25	2.89	3.25	3.29	3.38	3.00	3.13	4.00
Q27 Preparation in ethical behavior.	3.36	2.75	3.56	3.25	3.34	3.54	3.33	3.00	4.00
Q28 Preparation in appreciation of the Humanities.	3.07	2.00	3.11	3.25	3.06	3.42	3.00	2.79	3.00
Q29 Preparation in interpersonal skills.	3.29	2.25	3.11	3.75	3.28	3.69	3.00	3.25	4.00
Q30 Preparation in mathematics.	2.87	1.75	3.00	3.00	3.48	3.46	3.50	3.00	4.00
Q31 Preparation in oral communication.	2.79	2.33	2.78	3.25	3.31	3.62	3.50	3.31	3.00
Q32 Preparation in problem solving.	3.21	2.50	3.00	3.50	3.56	3.23	3.50	3.19	4.00
Q33 Preparation in teamwork.	3.13	2.00	3.33	3.75	3.41	3.38	3.33	3.44	4.00
Q34 Preparation in written communication.	2.67	2.50	3.44	3.25	3.19	3.62	3.50	3.25	3.00
Q35 Preparation in leadership.	3.07	2.50	3.00	3.25	3.19	3.38	3.33	3.31	4.00
Q37 Give your overall LTU assessment.	2.79	2.50	2.67	3.40	3.03	3.69	3.33	3.19	4.00



# Graduating Student Survey 2007- 2008 Graduate Results for

