CONTINUING TO DEVELOP A CULTURE OF ASSESSMENT AT LAWRENCE TECHNOLOGICAL UNIVERSITY

ASSESSMENT REPORT 2002-2003

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Continuing to Develop a Culture of Assessment at Lawrence Technological University

Introduction

The Student Assessment Committee at Lawrence Technological University continues to meet once every two weeks to plan, discuss, implement and review the University Assessment Plan of the university. The goal of the committee is to use the assessment initiatives to improve the quality of all academic programs and to foster changes that will improve student learning.

Evaluation methods from different programs are presented through in-house workshops in an effort of informing and educating all faculty on assessment levels of implementation as carried throughout the university. Individual meetings with committee members along with their department chairs continue to take place to ensure the vitality of the assessment program within each academic program. In these meetings, the program director, the associate provost and the coordinator for institutional research and assessment discuss the specifics of each program, and agree on a strategy of assessment for the respective departments. The strategies involve the assessment methods used for the year. The action plans to analyze the assessment results and the following up action to improve the academic program.

During the academic year of 2002-2003 several members of the committee presented results of the LTU assessment program at several conferences. In addition to the assessment of specific outcomes of individual programs, the university implemented a comprehensive assessment program on written communication and developed the plan for assessment of oral communication to be implemented in 2003-2004.

The activities of the assessment committee and the work that individual committee members have been done at the department level contributes to the continuous change of the university' s culture of assessment of student learning and how the assessment results are guiding decisions made at the university and department level. There is a measurable change in the value that most faculty members give to assessment activities as seen by the change in the opinions expressed by each department of the different components of the levels of implementation matrix designed by the Higher Learning Commission. However, as a university we still have a long way to go, especially in the involvement of students as integral part of our assessment planning.

In the case of most departments, the assessment committee members are the mentors and the coordinators of the assessment activities in their respective programs. In order to dedicate the necessary time to these activities three hours of release time per year, are granted to the committee member by the department chair, based on the role that this faculty member has in the overall assessment program in the department.

During the academic year of 2002-2003 all programs at LTU, both undergraduate and graduate, have completed the development of their educational Objectives.

University Student Assessment Committee
(2002-2003)

1. Chair and Director of Assessment	Badih Jawad
A. College of Architecture	
2. Architecture	Joongsub Kim
3. Art and Design	Virginia North
B. College of Arts and Science	
4. Mathematics and Computer Science	David Bindschadler
5. Natural Sciences	Walter Dean
6. Humanities, Social Sciences and Communication	Barry Knister
C. College of Engineering	
7. Civil Engineering	Donald Carpenter
8. Electrical and Computer Engineering	Lisa Anneberg
9. Engineering Technology	Donald Condit
10. Mechanical Engineering	Laura Lisiecki
D. College of Management	
11. College of Management	Patty Castelli
E. Ex-Officio Members	
12. Coordinator of Institutional Research and Assessment	Mary Thomas
13. Associate Provost	Maria Vaz
14. Provost	Lewis Walker
15. Vice-President for Finance and Administration	Lee Johnson

University Programs

A. College of Architecture

1. Bachelor of Science in Architecture
2. Bachelor of Facilities Management
3. Bachelor of Imaging
4. Bachelor of Arts in Interior Architecture
5. Master of Architecture
6. Master of Interior Design

B. College of Arts and Sciences

a. Department of Mathematics and Computer Science

7. Bachelor of Science in Mathematics
8. Bachelor of Science in Mathematics and Computer Science
9. Bachelor of Science in Computer Science
10. Master of Science in Computer Science

b. Department of Humanities, Social Science and Communication

11. Bachelor of Science in Humanities
12. Bachelor of Science in Business Management
13. Bachelor of Science in Psychology
14. Bachelor of Science in Technical Communication
15. Master of Science in Technical Communication

c. Department of Natural Sciences

16. Bachelor of Science in Chemistry
17. Bachelor of Science in Environmental Chemistry
18. Associate of Science in Chemical Technology
19. Bachelor of Science in Physics
20. Bachelor of Science in Physics and Computer Science
21. Master of Science in Education

d. University Studies

22. Associate of Science in University Studies

C. College of Engineering

a. Department of Civil Engineering

23. Bachelor of Science in Civil Engineering
24. Master of Civil Engineering
25. Master of Science in Civil Engineering
26. Master of Construction Engineering Management

b. Department of Electrical and Computer Engineering

27. Bachelor of Science in Electrical Engineering
28. Bachelor of Science in Computer Engineering
29. Master of Science in Electrical and Computer Engineering

c. Department of Mechanical Engineering

30. Bachelor of Science in Mechanical Engineering
31. Master of Engineering in Manufacturing Systems
32. Certificate in Manufacturing Engineering
33. Master of Automotive Engineering/Master of Science in Automotive Engineering
34. Master of Science in Mechanical Engineering
35. Master of Engineering Management
36. Doctor of Engineering in Manufacturing Systems

d. Department of Engineering Technology

37. Associate of Science in Construction Engineering Technology
38. Associate of Science in Mechanical Engineering Technology
39. Associate of Science in Electrical Engineering Technology
40. Associate of Science in Manufacturing Engineering Technology
41. Associate of Science in Electrical Contracting Technology
42. Bachelor of Science in Construction Management
43. Bachelor of Science in Engineering Technology
44. Bachelor of Science in Industrial Management
45. Bachelor of Science in Technology Management

D. College of Management

46. Bachelor of Science in Information Technology
47. Master of Business Administration
48. Master of Science in Information Systems
49. Master of Science in Industrial Operations
50. Career Integrated Master of Business Administration (CIMBA)
51. Doctor of Management in Information Technology
52. Doctor of Business Administration

Student Assessment Committee Activity for the Year 2002-2003

1. Implementation of the Fall Assessment Week and the 1st Assessment Day

The Fall Assessment Week and the 1st Assessment Day were implemented. The purpose of the Fall Assessment Week was the collection of findings from assessment activities done in 2001-2002 to prepare for the Assessment Day (Friday, September 18, 2002). The goal of the Fall Assessment Day is two-fold: to increase the awareness of assessment of student learning and its value among the faculty and to provide a forum for the faculty to reflect on the assessment findings of the previous year and define an Plan of Action at the department level for 2002-2003.

The agenda for the 2002 Assessment Day was the following:

Lear Auditorium

8:00 a.m.	Registration and Continental Breakfast
8:30 a.m.	Welcome - President Chambers
8:45 a.m.	Opening Remarks - Provost Walker
9:00 a.m.	Review of Day Activities - Dr. Jawad
9:15 a.m.	Department Breaking out Sessions

Gallery

12:00 p.m.	Lunch
12:30 p.m.	"Assessing for Deep Learning" Dr. Peggy Maki, AAHE Director of Assessment
1:30 p.m.	Break

Lear Auditorium

1:45 - 4:30 p.m. Lawrence Tech Assessment Symposium
" Best Practice Examples of Student Academic Achievement Assessment"

Best Practice Examples of Student Academic Achievement Assessment at Lawrence Tech

1:45 p.m.	" Direct and Indirect Measures" - David Bindschadler
2:00 p.m.	" Using Learning Objectives to Communicate Expectations" - Don Carpenter
2:15 p.m.	" Making Results Happen using Assessment" - Lisa Anneberg
2:30 p.m.	" Blackboard Usage for Assessment" - Laura Lisiecki and Steve Howell
3:00 p.m.	" Starting from Scratch - The Natural Sciences Objectives" - Walter Dean
3:15 p.m.	" Program and Student Achievement Assessment in the Humanities" - Barry Knister
3:30 p.m.	" Examples of Architecture and Design Student Assessment"- Joongsub Kim and Virginia North
4:00 p.m.	" Direct Measures for Assessing Student Learning Outcomes in the College of Management" - Patty Castelli, Laura Majewski and Jackie Stavros

2. Assessment of Writing Skills

The Committee defined an action plan for assessment of writing skills:

The assessment of writing skills of undergraduate students is done at two levels:

a) For underclassmen the assessment is done by the department of Humanities, Social Sciences and Communication and is course related. The department analyzes samples of student writing in the following courses: Writing Fundamentals, English Composition, World Masterpieces 1 and 2, Foundations of the American Experience and Development of the American Experience following a cycling timeline. The results and methodology of this assessment will be described in detail in the Humanities, Social Science and Communication department section of this report.

b) For upperclassmen, a multidisciplinary committee of representatives from the four colleges was formed to assess samples of student writing of students in the junior and senior year. The Professional Writing Assessment Committee defined evaluative criteria based on the writing rubric generated by the humanities faculty and introduced a few additional criteria related to graphical presentations and other items related to professional writing communications. The report of the committee is in Appendix.

c) The assessment committee generated a Writing Matrix that describes for each undergraduate degree the amount of writing required in each course. This matrix was distributed to each department for faculty evaluation and to help in future decisions about writing requirements.

d) National Survey of Student Engagement - The National Survey of Student Engagement in which LTU freshmen and senior students reported on the number of assignments and pages that they had written showed that LTU students wrote less than students in other universities.

3. Individual Meetings with departments

Dr. Badih Jawad, Dr. Maria Vaz, and Ms. Mary Thomas met with the assessment committee members and their department chairs in individual meetings to review and update the departments' assessment plans and action for the 2002-2003 academic year. During these meetings it was emphasized that one of the assessment committee goals for the year was to have the educational objectives for all the graduate programs developed. The summary of these meetings is part of Appendix

4. National Dissemination of LTU' s Assessment Program

The following presentations on LTU' s assessment program were given:

- IACBE's Fifth Annual Conference in April 2003

  Outcomes Assessment in Higher Education - Patty Castelli

Patti also wrote a monograph - Outcomes Assessment in Higher Education in collaboration with Dr. Green, President of IACBE. This monograph is being used for IACBE members and seminars presented on outcomes assessment. This monograph illustrates the outcomes assessment process by using a series of case studies with LTU's College of Management as the example. The outcomes assessment plan, action planning and annual report are included in this work; as well as a variety of instruments and assessments for direct and indirect measures. This work was completed during early Fall 2002 and was distributed to members. The monograph was also marketed in the Chronicle for Higher Education where hundreds of copies were sold. It is an outstanding guide for learning the practical application for implementing outcomes assessment in higher education.

- Symposium on Assessment Best Practices - Rose-Hulman Institute of Technology - May 2003

  The Engagement of Faculty in a University-Wide Assessment Program that transcends the Professional Accreditation Boards - Donald Carpenter, Badih Jawad, Melinda Weinstein, Maria Vaz

- Higher Learning Commission of the North Central Association Annual Meeting - Chicago, April 2003

  A Balancing Act - Engaging Faculty and Administration in University Wide Assessment - Donald Carpenter, Badih Jawad

- Assessment Conference - American Association of higher Education (AAHE) - Seattle, June 2003

  Featured Interactive Session - Collaboratively Designed Workshops with Accreditors - Peggi Maki, senior scholar, assessing for learning, AAHE; Steven Crow, executive director of the Higher Learning Commission, Kelly Funk , director of assessment, Michigan State university, Julie Jantzi, director of the center on institutions assessment planning, Azusa University, Catherine Riordan, Interim Vice-provost and professor of psychology, Central Michigan University and Maria Vaz, associate provost and dean of graduate programs, Lawrence Technological University

  Assessment of Students Learning - Structure, Strategies, and Processes that Transformed One Institution' s Culture - Badih Jawad, director of assessment and associate professor in the department of mechanical engineering, Laura Lisiecki, Associate Professor in the department of mechanical engineering, and Maria Vaz, associate provost and dean of graduate programs

  Assessing the Humanities at a Technological University - Gonzalo Munevar, professor and chair of humanities, social sciences, and communication, and James Rodgers, dean of arts and sciences, Lawrence Technological University

5. Assessment of Oral Communication Skills

The committee defined an action plan for assessment of oral communication skills:

With the input of several committee members, Prof. Kevin Kelch developed evaluative criteria for oral communication presentations. These criteria should be used as guidelines to use and modify in the different departments as appropriate.

The assessment of oral communication skills will be done by a multidisciplinary committee of faculty representing the four colleges of the university. As in the case of written communication, the assessment of the oral communication is done at two levels: at the end of the course Technical and Professional Communications (a sophomore course, part of the core curriculum, taken by all students at LTU. (Phase 1) and at the senior level, when the students deliver the presentation of their capstone project (Phase 2).

The implementation of the oral communication skills will take place during the 2003-2004 academic year. Phase 1 will occur at the end of the Fall 2003 and phase 2 at the end of the Spring 2004 semester.

6. Revision and Update of the 2002-2004 Action Plan

The Action-Plan 2002-2004 was revised. The initial plan did not take into account the amount of time it takes to define a consistent action plan and the follow-up implementation for each one of the items to be assessed in the next few years. Although the committee still thinks it is important to assess, communication skills, teamwork, critical thinking and leadership, the time-line in the original action plan showed to be too aggressive. The action plan timelines were revised. The revised plan is presented at the end of this section.

7. Student Awareness of the LTU' s Assessment Program

All new students are made aware of the assessment program at Lawrence Tech. During Discovery (the welcome program for freshmen students) the first year coordinator explains to the students the assessment program at LTU and the ways students will be involved in the program. During Discovery new students take two surveys - How to get the most of college (Noel-Levitz drop-out predictor instrument) and a career development survey.
This component of the Assessment program needs to be expanded in the next few years to allow the students to be integral part of the decision making and the analysis of the results.

Other 2003-2004 Assessment Activities

In order to improve the advising of students at LTU, a taskforce with members of the faculty senate was formed. The taskforce made a series of recommendations among which was the application of a survey to all undergraduate students on advising. The ACT survey on advising was sent to all undergraduate students. The results of this survey have been used in the formulation of a plan for improvement.

Lawrence Technological University
Assessment of Student Academic Achievement
Levels of Implementation

2002 - 2003

Departments	I. Institutional Culture		II. Shared Responsibility			III. Institutional Support		IV. Efficacy of Assessment
	a. Collective/Shared Values	b. Mission	a. Faculty	b. Administration & Board	c. Students	a. Resources	b. Structures	
Architecture	3	3	2	3	2	3	3	2+
Art & Design	3	3	3	3	2	3	3	2+
Civil Engineering	3	3	3	2.5	2	2.5	2.5	3
Electrical & Computer Engineering	3	2.6	2.7	1.5	2.25	1.5	1.5	2
Mechanical Engineering	3	3	2	3	1	2	2.5	2
Engineering Technology	2	2	3	2	2	2	2	2
Management	2	2	2	2	2	3	3	2
Humanities, Social Science, Communication	3	3	3	3	3	3	3	3
Natural Sciences	2	2	2	2.5	1	2	2	2
Math & Computer Science	2	2	1	2	1	2	2	2
LTU Overall Average 2002-2003	2.6	2.6	2.4	2.5	1.8	2.4	2.5	2.2+
LTU Overall Average 2001-2002	2.0	2.0	1.7	2.0	1.7	1.8	1.6	1.6

Levels: 1,2,3
Level One: Beginning Implementation Assessment Programs
Level Two: Making Progress in Implementing Assessment Programs
Level Three: Maturing Stages of Continuous Improvement

Lawrence Technological University Action Plan
2002-2004

Goals	Strategies	Indicators
1. To have an Assessment program sustainable and on-going	1 .Assess the following university-wide educational goals: • **Written, Oral and Visual Communication** Interdisciplinary Committee **2002-2003** Develop Rubrics with students Revise Time-line Implementation of methodologies Close the loop **2003-2004** • **Team Work and Leadership** Educate faculty on effective team work Identify key courses and extracurricular activities to assess team work development Develop observation methodology and rubrics Develop Time-Line Development of methodologies Close the loop **2003-2004** • **Analytical Skills** Develop Outcomes Identification of direct and indirect methodologies **2003** Implementation of methodologies Close the loop **2004-2005** 2. Assess one or two program specific goals **2002-2004** 3. Develop policies for membership of Assessment Committee **2002-2003** 4. Institutional Support • Develop a budget **2002-2003** • Technical assistance for Institutional Research and Assessment Office **2003-2004** Financial/Release Time for faculty **2002-2003** 5. Re-evaluation of time-lines, methodologies and procedures **2002-** 6. Individual Meetings with committee members to review departmental plans and activities **2002-**	For all educational goals identified: 1.Time-line implemented 2. Annual Assessment Report developed 3. Program level actions feedback loop documentation In addition: 4. Dissemination of the assessment report – discussion of the feedback loop at the department level 5. Release time for assessment implementation 6. Additional technical support for Institutional Research and Assessment Office

Goals	Strategies	Indicators
2. On-going and sustainable system of full-time and part-time faculty training on assessment procedures and implementation	1. Invite External Consultants to campus **2002-** 2. Deliver seminars and workshops – Assessment Committee **2002-**	1. Number of training and level of attendance at training evaluation sessions as well as analysis of forms. 2. Integrated line-items in budget for faculty training, workshops, etc
3. To have a University-Wide Assessment Culture including students	1. Statement of Value of Assessment on promotional materials and websites **2003-** 2.Explanation of the Assessment program and the role of students at the Orientation of New Students **Starting Fall 2002 -** 3. Discussion of purpose of and implementation of Assessment Day, Week or Month. **2002-2004** **2002-** 4. Periodic articles on assessment in all internal communications newsletters, newspaper and magazines **2003-** 5. Involve students on committees 6. Include a description of the Assessment program in the Orientation for new faculty (full-time and part-time) **2002-** 7. Identify and Develop materials in best practices of teaching and learning and assessment **2002-**	1. A working/functioning assessment process for each academic program 2. Assessment Day, Week or Month implemented 3. Ability to gauge results of assessment day, week or month (assessment of assessment) 4. 80% of full-time faculty involvement 5. Student and Part-time faculty involvement 6. Materials developed 7. Involvement of Student Affairs and other offices of the university

Art and Design Department
Objectives and Outcomes Assessment Summary
2002 – 2003

1. Program Educational Objectives, Outcomes and Accreditation Status

The Department of Art and Design offers three undergraduate degrees and one Master degree: The Bachelor in Interior Architecture and the Bachelor of Fine Arts in Imaging, the Bachelor of Facility Management and the Master in Interior Design.

a) Educational Objectives for the Bachelor of Interior Architecture

These educational objectives are established by the Foundation for Interior Design Education Research (FIDER). There are twelve Professional Standards for this program. The Bachelor of Interior Architecture is accredited by both FIDER and the National Association of Schools of Art and Design (NASAD).

The twelve FIDER standards are:

1. Curriculum Structure
   The curriculum is structured to facilitate and advance students learning.

2. Professional Values
   The program leads students to develop the attitudes, traits, and values of professional responsibility, accountability, and effectiveness.

3. Design Fundamentals
   Students have the foundation in the fundamentals of art and design, theories of design and human behavior, and discipline-related history.

4. Interior Design
   Students understand and apply the knowledge, skills, processes, and theories of interior design.

5. Communication
   Students communicate effectively.

6. Building Systems and Interior Materials
   Students design in the context of building systems. Students use appropriate materials and products.

7. Regulations
   Students apply the laws, codes, regulations, standards, and practices that protect the health, safety, and welfare of the public.

8. Business and Professional Practice
   Students have a foundation in business and professional practice.

Faculty, Facilities, Administration, and Assessment Standards 9-12

9. Faculty
   Faculty members and other instructional personnel are qualified and adequate in number to implement program objectives.

10. Facilities
    Program facilities and resources provide an environment to stimulate thought, motivate students, and promote the exchange of ideas.

11. Administration
    The administration of the program is clearly defined, provides appropriate program leadership, and supports the program. The program demonstrates accountability to the public through its published documents.

12. Assessment
    Systematic and comprehensive assessment methods contribute to the program' s ongoing development and improvement.

b) Educational Objectives for the Bachelor of Fine Arts in Imaging
These educational objectives are established by NASAD, the accreditation agency for the Bachelor of Fine Arts in Imaging.

c) Educational Objectives for the Master in Interior Design

The Master in Interior Design will allow an advanced focused study of Interior Design by people who have already earned a Bachelors degree in Interior Design or Architecture.

Graduates from the Masters in Interior Design program will be able to:

- Conduct research and utilize research results to develop new theories and applications within the Interior Design field.
- Apply advanced knowledge in lighting and electronic imaging to solve complex interior design problems.
- Creatively develop solutions to complex interior design problems through a combination of research and design application.
- Apply current educational theory and practice in teaching interior design.
- Become a leader within the field through experience with exemplary leadership role models within the reflective practice studio.
- Synthesize current interior architecture principles and theory to solve complex interior architecture problems.

4 + 3 Track - Master' s in Interior Design

The 4 + 3 Track will combine the competency to practice interior design typically delivered in an undergraduate program with the Masters Degree program content. This degree is for people who have a bachelor' s degree in an unrelated discipline. In addition to the abilities stated above, graduates from the 4 + 3 Track will be able to:

- Apply two-dimensional and three-dimensional design principles and elements in solving interior architecture problems.
- Apply skills in drawing, drafting, and computer imaging in developing and documenting interior architecture solutions.
- Apply knowledge of architectural and interior history in understanding and developing relevant design theory.
- Apply knowledge of building and environmental systems in solving interior architecture problems.
- Apply business principles to interior architecture practice.

2. Assessment Activities and Assessment Results

The assessment of the programs offered by the Department of Art and Design uses the following audiences: students, alumni, faculty, employers, and external reviewers.

- In response to concerns expressed by the Interior Architecture accrediting agency, FIDER, revisions were made in the two senior level studios. ARI 4133 Interior Architecture 3 increased the level of specification and documentation to support studio projects in retail store design. ARC 4234 Allied Studio: Interiors required students to space plan an entire clinic facility based on the program of requirements. In the past, students were given existing healthcare facility plans and did furniture arrangement and minor renovation. FIDER considered this work to lack complexity and indicated that the work students had been doing at the junior level was at least as complex. Student work from this revised Allied Studio was reviewed by two outside jurors and the department chairman. Noticeable improvement over junior level courses was indicated in space planning, material selection and application, lighting design, and graphic presentations.

- During 2002 - 2003 the Junior level integrated studios (ARI 3115 Interior Architecture 1 and ARI 3125 Interior Architecture 2) were able to occupy a dedicated studio in the UTLC building. This supported the primarily computer based teaching in these courses. Unfortunately, the senior level Allied Studio (ARC 4234) was located in the old Architecture Building during Spring semester. While the studio space was dedicated, the furniture and physical surroundings were inadequate to support educational objectives. Students rarely occupied this space outside of class time due to the extreme temperatures, poor lighting, and inadequate furniture to support their work.

- Student assessment of faculty teaching within the department was reviewed by the department chairman and results along with recommendations were shared with faculty. The freshman year coordinator worked with new faculty teaching freshman courses and provided them with examples of syllabi, course objectives, evaluation instruments, and student work from past classes. Full time faculty teaching in the freshman year, Steve Rost and Gretchen Maricak, also mentored new faculty teaching Basic Design and Visual Communication.

- Seniors taking the ARI 4922 Internship course required in Interior Architecture assessed the courses in the program and the I.A. curriculum. Recommendations made by students for improving the program include:

  1. Continue the core objectives in Basic Design and Visual Communication in the freshman year.
  2. Recommend more simulation of real-world projects in the senior year relevant to time schedule and realistic budget application. More specifications and pricing typical in jobs should be presented.
  3. Building Systems 1 was rated highly by most students for providing an excellent base knowledge of construction and building materials. Increase the amount of lecture material in Building Systems 2 on construction and materials while reducing the amount of studio time in that course. Most students indicated that the amount of work required in both Building Systems courses exceeded that of other 3 credit hour courses.
  4. The majority of students indicated that IDS 1 and 2 provided excellent experience in conceptual design development and the use of models in three-d design. Increase communication among IDS components.
  5. More experience in quick sketch techniques needed to visualize ideas and ability to use markers for renderings included in curriculum.
  6. More experience needed in preserving interiors in the Preservation Technology course.
  7. Internship experience recommended prior to senior year and firm visits that now occur in senior year should be scheduled prior to senior year.

-Graduating Students survey not available at this time.

-Faculty Assessment of curriculum and courses will occur in August in response to this assessment.

-Noel-Levitz student satisfaction inventory was not done this year. Data from the previous Noel Levitz survey did not include a significant enough number of Art and Design students.

Status of the B.F.A. in Imaging program:

The revised program was accepted by the Deans' Council in Spring 2003. The new program with two concentrations - one in Digital Arts and one in Graphic Design, will begin in Fall 2003. These two concentrations need to be marketed to perspective students. Since marketing for Fall 2003 did not occur, the focus this year will be on developing the courses in the program and recruiting students for the program for Fall 2004.

3. Action Plan for 2003-2004

For Interior Architecture:
Review of the FIDER assessment of the program goals and Objectives.
Relate the assessment activities to the University Strategic and the College Strategic Plans
Gather data in the following:

1. Student Assessment of faculty teaching
2. Student Assessment of courses and curriculum
3. Internship Employer assessment of students
4. Graduating Students survey
5. Faculty Assessment of curriculum and courses
6. Analysis of the Noel-Levitz student satisfaction inventory

Interior Architecture faculty to review assessment results in August and determine course and curriculum revisions to be applied during 2003/2004.

Bachelor of Fine Arts in Imaging

Begin to offer the new courses in the two new concentrations during Fall 2003 and Spring 2004 and market this program to new students for Fall 2004.

Appendix

Art and Design

ARI 4922 Internship Studies – Curriculum Analysis

a. For each of the required courses below that you took at LTU, evaluate the positive aspects that helped prepare you for a career in Interior Architecture and indicate aspects of the course that could be improved.

ARC 1113 Basic Design 1

ARC 1133 Basic Design 2

ARC 1213 Visual Communication 1

ARC 1223 Visual Communication 2

ARC 1012 Art and Architecture Awareness

ARC 3613 History of the Designed Environment 1

ARC 3623 History of the Designed Environment 2

ARC 2117 Integrated Design Studio 1

ARC 2127 Integrated Design Studio 2

ARC 2813 Electronic Methodologies 1

ARC 3633 Western Traditions of Art 1

ARC 3413 Environmental Systems 1

ARC 2514 Structures 1

ARC 2313 Building Systems 1

ARC 2323 Building Systems 2

ARI 4103 Graphics or another Graphic Design Course at LTU

ART 3212 Illustration 1

ARI 3115 Interior Architecture 1 (Office Design and CAD)

ARI 3125 Interior Architecture 2 (Hospitality)

ARI 3122 Materials

ARI 4133 Interior Architecture 3 (Retail)

ARI 4113 History of Interiors and Furniture

ARI 4353 Preservation Technology

ARI 4223 Interior Design Practice

ARI 4922 Internship Studies

ARC 4234 Allied Design: Interiors (Health Care and Residenital)

ARI 4143 Advanced Lighting

ARI 4123 Environmental Psychology

b. Now that you have worked in the field, please indicate from this perspective what improvements you would make in the Interior Architecture program at LTU. Answer this thoroughly and specifically.

Internship Supervisor's Student Evaluation Form

Please fill out this form, sign it, and mail it to Dr. Virginia North, Lawrence Technological University, 2100 West Ten Mile Road, Southfield, MI 48075-1058, within one week after the student has completed the 150 hours of internship in your firm.

Firm Name_____ Date_____

Firm Address_____

_____

Supervisor's Name_____

Supervisor's Job Title_____

Professional Degree(s)_____ Date(s) Received_____

University where Degree(s) were attained_____

Is your degree in Interior Design or Interior Architecture? YES NO

Number of years experience you have practiced Interior Design or Interior Architecture. _____

Have you passed the NCIDQ Exam? YES NO

Have you passed the NCARB Exam? YES NO

Student Name_____ Dates of Internship_____

List the positive attributes exhibited by this student.

List the areas the student could improve before entering the interior architecture field.

Other comments or advice to the student about a career in interior architecture. (attach separate pages if necessary)

Supervisor's Signature:_____

Student Evaluation – Page 2

Activity	Superior	Above Average	Average	Below Average	Unsatisfactory	N/A
Drafting	Superior	Above Average	Average	Below Average	Unsatisfactory	N/A
Presentation Boards	Superior	Above Average	Average	Below Average	Unsatisfactory	N/A
Renderings	Superior	Above Average	Average	Below Average	Unsatisfactory	N/A
Furniture Selection	Superior	Above Average	Average	Below Average	Unsatisfactory	N/A
Furniture Specification	Superior	Above Average	Average	Below Average	Unsatisfactory	N/A
Finish Selection	Superior	Above Average	Average	Below Average	Unsatisfactory	N/A
Finish Specification	Superior	Above Average	Average	Below Average	Unsatisfactory	N/A
CAD	Superior	Above Average	Average	Below Average	Unsatisfactory	N/A
Ability to Work with People in the Firm	Superior	Above Average	Average	Below Average	Unsatisfactory	N/A
Verbal Communication	Superior	Above Average	Average	Below Average	Unsatisfactory	N/A
Written Communication	Superior	Above Average	Average	Below Average	Unsatisfactory	N/A
Resource Room Work	Superior	Above Average	Average	Below Average	Unsatisfactory	N/A
Professional Appearance	Superior	Above Average	Average	Below Average	Unsatisfactory	N/A
Level of Initiative	Superior	Above Average	Average	Below Average	Unsatisfactory	N/A
Acceptance of Responsibility	Superior	Above Average	Average	Below Average	Unsatisfactory	N/A
Accuracy of Work	Superior	Above Average	Average	Below Average	Unsatisfactory	N/A
Creative Ability	Superior	Above Average	Average	Below Average	Unsatisfactory	N/A
Technical Ability	Superior	Above Average	Average	Below Average	Unsatisfactory	N/A
Other_____	Superior	Above Average	Average	Below Average	Unsatisfactory	N/A
OVERALL RATING OF STUDENT	**Superior**	**Above Average**	**Average**	**Below Average**	**Unsatisfactory**	

Architecture Department
Objectives and Outcomes Assessment Summary
2002 - 2003

1. Program Educational Objectives, Outcomes and Accreditation Status

The Department of Architecture offers one undergraduate degree and one Master degree: The Bachelor of Science in Architecture and the Master of Architecture. The National Architectural Accrediting Board (NAAB) accredits the professional degree offered by the college, the Master of Architecture, and in this accreditation evaluates also the Bachelor of Science in architecture as it prepares the candidates for the professional degree. Both undergraduate and graduate degree have the same educational objectives and outcomes, development by NAAB.

Educational Objectives for the Bachelor and Master of Architecture

There are 37 criteria set forth by NAAB, that should be developed throughout the curriculum at three levels: awareness, understanding and ability.
These criteria are described in detail in the appendix of this summary (see attachment 5).

2. Assessment Activities and Assessment Results

i. Formation of Architecture Assessment Committee

Architecture Assessment Committee was established during fall term 2002. Members include Joongsub Kim (chair), Ed Orlowski, and Dale Gyure.

ii. Yearly Assessment Plan

The following yearly plan was conceived during fall 2002

- At least one assessment goal will be assessed every semester. Assessment goals will be aligned with the NAAB 37 Student Performance Criteria and are mapped to the architecture program core courses. 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 six years in preparation for the next NAAB accreditation visit. Every selected goal (i.e., performance criterion) will include outcomes, objectives, and assessment implementation strategies.

- As part of the ongoing debate among ACSA member schools regarding suggested revisions/clarifications to the current NAAB student performance criteria, the committee will continue to assess and record COAD' s evaluation of NAAB' s criteria.

- The architecture assessment committee plans to work in collaboration with the COAD curriculum committee concerning the review of the current curriculum. This action item is on hold for the academic year 2002-2003 due to a major transition in key leadership positions at COAD (i.e., dean, department chair, and graduate program coordinator).

- The committee plans to update the architecture faculty several times per semester on the ongoing and future activities of the architecture and the university committees. In addition, the architecture committee will engage the faculty in the assessment-related activities (e.g., writing and oral communication assessment surveys, assessment goals, etc.) via emails, letters, and faculty meetings throughout the year.

c) Initiatives accomplished

Fall 2002

- Began ground work on assessment framework for IDS 1 to be applied to Fall 2003; IDS 1 instructors, IDS 1 coordinator, and the assessment committee members debated the pertinent issues including goals, methods, and processes.
- Conducted the survey questionnaire on courses where writing is required. Both full time and part time faculty participated (see *Attachment 1)*
- Conducted the survey questionnaire on courses where oral presentation is required. Both full time and part time faculty participated (see *Attachment 2*)
- Developed assessment plan for IDS 2 for spring 2003 term (see *Attachment 3*). The criterion assessed in IDS 2 was collaborative learning. The assessment assumption was that the degree in which students showed a integrated project at the end of the semester showed the degree in which they know how to work collaboratively in multidisciplinary team.

Spring 2003

- Conducted assessment of IDS 2 (see *Attachment 4*)
  Jurors who critiqued group student projects were given a survey to rate characteristics that show the degree in which the work of the students showed a full integration. There were 32 students involved in the study. Each one of the questions could be rated from 1 to 5. The tabulation of the results in shown in the appendix (attachment 4)
- Updated the faculty on the activities of the assessment committee (university and architecture agenda) during the Assessment Week (date changed to early May, 2003 from the third week of April due to holidays); faculty participated in discussion and debate on the wide range of assessment issues
- Submitted writing samples of the Environmental Psychology course taught by Prof. Joongsub Kim to the university technical and professional writing subcommittee
- Submitted Thesis abstract writing samples from the Summer Pre-Thesis Seminar course as taught by Professor David Chasco
- Conceived the assessment plan for the academic year 2003-2004 (see *3 below*)

3. Action Plan for 2003-2004

a) Assessment of two courses: IDS 1 and Allied Design: Sustainable Design Studio

Course to be assessed: IDS1 (ARC2117)

Goal to assess:

Use of Precedents*: *Ability to* provide a coherent rationale for the programmatic and formal precedents employed in the conceptualization and development of architecture and urban design projects.
(Use of Precedents is #9 of the NAAB student performance criteria)

Outcome 1: Students will be able to undertake a research assignment in which they research and present historical precedents of a specified building type or design methodology,
Outcome 2: Students will be able to discuss the influence of a historic precedent cited in the theory component upon their own design work.

Objective

At least 75% of the students in the course will be evaluated as successfully demonstrating the ability to use design precedents in the design process.

Success will be assessed as follows:

- At least 75% of the students in the course will receive a C or better on the portion of their project or course evaluation that grades the successful use of precedents.

Implementation

- All sections of IDS1 will be studied to provide the sample for assessment.
- Architecture assessment committee will develop the evaluation form, which instructors will use to grade the successful use of precedents.
- The evaluation will take place during the midterm studio reviews.
- The results of the evaluation, feedback, and recommendation/future plan will be documented during the month of December & January.

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

Goal

Environmental Conservation*: *Understanding of* the basic principles of ecology and architects' responsibilities with respect to environmental and resource conservation in architecture and urban design.
(Environmental Conservation is #13 of the NAAB student performance criteria)

Outcome 1: Students will be able to incorporate the concerns of environmental and resource conservation into a final comprehensive design project

Outcome 2: Students will be able to successfully complete a final design project demonstrating an integrated approach to design and environmental issues

Objective

At least 75% of the students in the course will be evaluated as successfully demonstrating an understanding of environmental conservation measures in the design process.

Success will be assessed as follows:

- At least 75% of the students in the course will receive a C or better on the portion of their project evaluation that grades the integration of issues of environmental conservation and sustainability into their final design projects.

Implementation

- The LEED 2.1 rating system, which will form the basis of the assessment evaluation score sheet, will be used.
- Architecture assessment committee will have an input on the final evaluation form, which the course instructor will develop to grade the successful integration of design and environmental issues.
- The evaluation will take place during the midterm studio reviews.
- The results of the evaluation, feedback, and recommendation/future plan will be documented during the month of December & January.

b) Assessment of the university-wide educational goals

The university assessment committee has the following goals to be assessed at the university level:

1. Written and Oral Communication
2. Critical thinking
3. Teamwork
4. Leadership

Current plan under consideration in the College of Architecture (faculty input & approval required)

- The architecture committee will develop a set of guidelines for each of these four goals through faculty participation and input
- Align these goals with the NAAB 37 criteria and develop a yearly assessment plan to assess the selected core courses where these criteria are applicable.
- Work with the university assessment committee to develop evaluation criteria for the four goals that are intended for adaptation to the specific needs of the architecture department. However, it is recognized that assessment criteria should be tailored to the department' s uniqueness as per NAAB Accreditation Criteria.
- Assess one goal from the above list for each academic year (note: this would be only our secondary objective because it is recognized that assessing one course based on one assessment goal aligned with the NAAB Student Performance Criteria is a major assessment-related activity for the architecture department due to significance of NAAB Accreditation and given limited faculty and heavy involvement to date of faculty in other committee areas – See Page 20: Item 2)

Apendix

Architecture

(Attachment 1)

DEPARTMENT OF ARCHITECTURE

MEMORANDUM

Date: October 24, 2002
To: All Full and Part-time Faculty in the Department of Architecture
From: Joongsub Kim, Assistant Professor of Architecture
Chair, Architecture Student Academic Achievement Assessment Committee
Member, LTU Student Academic Achievement Assessment Committee

RE: Survey of Architecture Courses in which Students Write

Dear Colleagues,

I serve on the university-wide Student Academic Achievement Assessment Committee. I also chair the Assessment Committee for the Architecture Department.

As part of the ongoing efforts of the university committee, I would like to request your assistance in collecting information on all courses in which students write as part of the class activities. Please complete the short questionnaire (see attachment). The goal is to survey the current status. This is one of many steps we take to ensure an adequate level of writing competency for our architecture students.

Please return the completed questionnaire to me via email at **j_kim@ltu.edu** or turn in the hard copy to Sallie Ilg (T337) or Gayle Schaeff (A150) before **Monday, November 11th**.

Thank you very much for your time and assistance.

Joongsub (Joon) Kim

Survey of Courses in which Students Write

Course Title:
Course Number:
Semester:

Please itemize below all writing assignments (identify all forms of writing; e.g., term papers, technical reports, proposals, essays, letters, concept statements; mandatory or optional, etc.).

	Writing Assignment	Mandatory or Optional	Summary of the Key Requirements
1			
2			
3			
4			
5			

Course Title:
Course Number:
Semester:

Please itemize below all writing assignments (identify all forms of writing; e.g., term papers, technical reports, proposals, essays, letters, concept statements; mandatory or optional, etc.).

	Writing Assignment	Mandatory or Optional	Summary of the Key Requirements
1			
2			
3			
4			
5			

(Attachment 2)

DEPARTMENT OF ARCHITECTURE

MEMORANDUM

Date: November 18, 2002

To: All Full and Part-time Faculty in the Department of Architecture

From: Joongsub Kim, Assistant Professor of Architecture
Chair, Architecture Student Academic Achievement Assessment Committee
Member, LTU Student Academic Achievement Assessment Committee

RE: Survey of Architecture Courses that involve Presentations or Oral Communication

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Dear Colleagues,

Thank you for returning the questionnaire for the Survey of Architecture Courses in which Students Write. I have received a total of 12 responses (Interior Design included).

This time, on behalf of the University Assessment Committee, I would like to request your assistance in collecting information on all courses that involve presentations or oral communication as part of the class activities. Please complete the short questionnaire (see attachment). The goal is to survey the current status.

Please return the completed questionnaire to me via email at j_kim@ltu.edu or turn in the hard copy to Sallie Ilg (T337) or Gayle Schaeff (A150) before Monday, December 2nd.

Thank you very much for your time and assistance.

Joongsub (Joon) Kim

Survey of Courses that involve Presentations or Oral Communication

Instructor:
Course Title:
Course Number:
Semester:

Please itemize below all presentations or oral communication assignments (identify all forms; e.g., desk crits, midterm and final term presentations, oral presentations of term papers, technical reports, proposals, essays, or concept statements; group discussions; role play; mandatory or optional, etc.).

	Presentations or Oral Communication Assignment	Mandatory or Optional	Summary of the Key Requirements
1			
2			
3			
4			
5			
6			

Instructor:
Course Title:
Course Number:
Semester:

Please itemize below all presentations or oral communication assignments (identify all forms; e.g., desk crits, midterm and final term presentations, oral presentations of term papers, technical reports, proposals, essays, or concept statements; group discussions; role play; mandatory or optional, etc.).

	Presentations or Oral Communication Assignment	Mandatory or Optional	Summary of the Key Requirements
1			
2			
3			
4			
5			
6			

(Attachment 3)

Student Academic Achievement Assessment

Course to be assessed: IDS2 (ARC2127), Spring 2003

Goal

Collaborative Skills*: *Ability to identify and assume divergent roles that maximize individual talents, and to cooperate with other students when working as members of a design team and in other settings.*
(Collaborative skills is #12.6 of the NAAB student performance criteria)

Outcome

Students will be able to successfully complete a design project demonstrating an integrated approach to the disciplines of architectural, interior, and lighting design.

Objective

At least 75% of the students in the course will be evaluated as successfully integrating the various disciplines into their final project.

Implementation

Success will be assessed as follows:

- At least 75% of the students in the course will receive a C or better on the portion of their project evaluation that grades the success of multi-disciplinary integration.
- At least 75% of the students will achieve a minimum established rating of " 3" upon evaluation by outside critics.

Specific criteria to measure students' ability to recognize and assume divergent roles in their design work are outlined upon the guest critic survey form attached.

Two sections of IDS will be studied to provide the sample for assessment.

(Attachment 4)

Student Academic Achievement Assessment

Assessment Survey: IDS2 (ARC2127), Spring 2003

Guest Juror:
Please evaluated the presented student work against the following criteria, and answer the questions based upon the five point scale, with " 5" being the highest score, and " 1" being the lowest.

Student Name: _____

1. The student has demonstrated an understanding of the relationship between building enclosure and interior space and volume.

1 2 3 4 5

2. The student has demonstrated an awareness of the effect of lighting (both natural and artificial) upon the quality of interior space.

1 2 3 4 5

3. The student has demonstrated an awareness of the relationship between building structure and space/form.

1 2 3 4 5

STUDENT ACADEMIC ACHIEVEMENT ASSESSMENT SURVEY: IDS2 (ARC 2127) SPRING 03

					Average*
Student 1					
question #1	4.00	4.00	3.00	5.00	4.00
question #2	5.00	3.00	3.00	5.00	4.00
question #3	5.00	3.00	3.00	5.00	4.00
					4.00
Student 2					
question #1	4.00	4.00	2.00	4.00	3.50
question #2	5.00	4.00	3.00	4.00	4.00
question #3	5.00	5.00	3.00	4.00	4.25
					3.92
Student 3					
question #1	3.00	4.00	5.00	3.00	3.75
question #2	3.00	3.00	4.00	4.00	3.50
question #3	4.00	4.00	4.00	3.00	3.75
					3.67
Student 4					
question #1	4.00	4.00	4.00	5.00	4.25
question #2	4.00	5.00	4.00	5.00	4.50
question #3	4.00	4.00	5.00	5.00	4.50
					4.42
Student 5					
question #1	5.00	4.00	2.00	4.00	3.75
question #2	5.00	4.00	3.00	4.00	4.00
question #3	4.00	5.00	3.00	4.00	4.00
					3.92
Student 6					
question #1	4.00	5.00	4.00	4.00	4.25
question #2	4.00	4.00	4.00	3.00	3.75
question #3	5.00	5.00	5.00	3.00	4.50
					4.17
Student 7					
question #1	5.00	4.00	5.00	5.00	4.75
question #2	5.00	4.00	5.00	5.00	4.75
question #3	5.00	4.00	5.00	5.00	4.75
					4.75
Student 8					
question #1	2.00	2.00	1.00	1.00	1.50
question #2	1.00	2.00	1.00	1.00	1.25
question #3	1.00	2.00	1.00	1.00	1.25
					1.33
Student 9					
question #1	2.00	1.00	3.00	2.00	2.00
question #2	4.00	2.00	2.00	2.00	2.50
question #3	4.00	1.00	2.00	2.00	2.25
					2.25
Student 10					
question #1	3.00	4.00	4.00	5.00	4.00
question #2	2.00	2.00	4.00	5.00	3.25
question #3	2.00	2.00	4.00	5.00	3.25
					3.50
Student 11					
question #1	5.00	4.00	3.00	5.00	4.25
question #2	4.00	4.00	3.00	5.00	4.00
question #3	4.00	4.00	3.00	5.00	4.00
					4.08
Student 12					
question #1	4.00	4.00	3.00	5.00	4.00
question #2	3.00	4.00	3.00	5.00	3.75
question #3	3.00	5.00	3.00	5.00	4.00
					3.92
Student 13					
question #1	4.00	4.00	4.00	4.00	4.00
question #2	3.00	4.00	3.00	4.00	3.50
question #3	3.00	5.00	3.00	4.00	3.75
					3.75
Student 14					
question #1	4.00	2.00	4.00	5.00	3.75
question #2	3.00	3.00	4.00	4.00	3.50
question #3	3.00	3.00	3.00	4.00	3.25
					3.50
Student 15					
question #1	5.00	4.00	3.00	5.00	4.25
question #2	5.00	5.00	4.00	5.00	4.75
question #3	5.00	4.00	3.00	5.00	4.25
					4.42

Student 16 unable to attend--undergoing chemo

Jeannette Peters presumed to have dropped the class

CLASS AVERAGE: 3.71

***AVERAGE** is based on a five-point scale, with "5" being the highest score and "1" being the lowest.

QUESTIONS:

#1: The student has demonstrated an understanding of the relationship between building enclosure and interior space and volume.

#2: The student has demonstrated an awareness of the effect of lighting (both natural and artificial) upon the quality of interior space.

#3: The student has demonstrated the ability to integrate the needs of architecture, interiors, and lighting into a design project.

*NOTE: The assessment of the course and the students was performed by the review jury of outside faculty, adjunct faculty and/or visiting professional critics.

STUDENT ACADEMIC ACHIEVEMENT ASSESSMENT SURVEY: IDS2 (ARC 2127) SPRING 03

					Average*
Student 1					
question #1	4.00	4.00	4.00	5.00	4.25
question #2	5.00	4.00	4.00	5.00	4.50
question #3	5.00	4.00	4.00	4.00	4.25
					4.33
Student 2					
question #1	4.00	4.00	2.00	4.00	3.50
question #2	1.00	4.00	4.00	4.00	3.25
question #3	2.00	2.00	4.00	4.00	3.00
					3.25
Student 3					
question #1	2.00	4.00	5.00	4.00	3.75
question #2	3.00	3.00	5.00	5.00	4.00
question #3	3.00	5.00	5.00	3.00	4.00
					3.92
Student 4					
question #1	4.00	4.00	4.00	2.00	3.50
question #2	4.00	3.00	2.00	3.00	3.00
question #3	5.00	2.00	2.00	2.00	2.75
					3.08
Student 5					
question #1	5.00	4.00	3.00	4.00	4.00
question #2	3.00	4.00	3.00	2.00	3.00
question #3	4.00	3.00	2.00	4.00	3.25
					3.42
Student 6					
question #1	4.00	5.00	5.00	4.00	4.50
question #2	4.00	4.00	4.00	3.00	3.75
question #3	4.00	5.00	4.00	4.00	4.25
					4.17
Student 7					
question #1	5.00	4.00	5.00	3.00	4.25
question #2	5.00	4.00	4.00	3.00	4.00
question #3	5.00	5.00	4.00	3.00	4.25
					4.17
Student 8					
question #1	2.00	2.00	3.00	3.00	2.50
question #2	2.00	2.00	3.00	3.00	2.50
question #3	3.00	2.00	3.00	3.00	2.75
					2.58
Student 9					
question #1	2.00	3.00	3.00	2.00	2.50
question #2	4.00	3.00	3.00	3.00	3.25
question #3	4.00	4.00	4.00	3.00	3.75
					3.17
Student 10					
question #1	3.00	5.00	4.00	5.00	4.25
question #2	4.00	4.00	4.00	5.00	4.25
question #3	4.00	4.00	4.00	5.00	4.25
					4.25
Student 11					
question #1	3.00	4.00	3.00	4.00	3.50
question #2	2.00	3.00	2.00	4.00	2.75
question #3	3.00	4.00	3.00	3.00	3.25
					3.17
Student 12					
question #1	4.00	4.00	5.00	5.00	4.50
question #2	4.00	4.00	4.00	5.00	4.25
question #3	5.00	5.00	4.00	5.00	4.75
					4.50
Student 13					
question #1	4.00	5.00	4.00	5.00	4.50
question #2	4.00	4.00	3.00	4.00	3.75
question #3	4.00	4.00	4.00	4.00	4.00
					4.08
Student 14					
question #1	4.00	5.00	4.00	5.00	4.50
question #2	3.00	5.00	4.00	5.00	4.25
question #3	4.00	4.00	5.00	4.00	4.25
					4.33
Student 15					
question #1	5.00	4.00	3.00	5.00	4.25
question #2	4.00	4.00	4.00	5.00	4.25
question #3	5.00	4.00	5.00	5.00	4.75
					4.42
Student 16					
question #1	5.00	4.00	4.00	4.00	4.25
question #2	4.00	3.00	4.00	4.00	3.75
question #3	4.00	4.00	4.00	4.00	4.00
					4.00

CLASS AVERAGE: 3.80

*AVERAGE is based on a five-point scale, with "5" being the highest score and "1" being the lowest.

QUESTIONS:

#1: The student has demonstrated an understanding of the relationship between building enclosure and interior space and volume.

#2: The student has demonstrated an awareness of the effect of lighting (both natural and artificial) upon the quality of interior space.

#3: The student has demonstrated the ability to integrate the needs of architecture, interiors, and lighting into a design project.

*NOTE: The assessment of the course and the students was performed by the review jury of outside faculty, adjunct faculty and/or visiting professional critics.

(attachment 5)

Objectives for the both Bachelor of Science in Architecture and the Master of Architecture

(From the NAAB Accreditation Guidelines)

1998 Guide to Student Performance Criteria

To assure broad familiarity with the skills and knowledge that must be demonstrated by graduates of professional degree programs and to encourage dialogue about the goals of architecture education, the NAAB publishes a guide to the student performance criteria. As one of the conditions of accreditation, programs are required to distribute copies of the guide to all faculty and incoming students. The NAAB also provides copies of the guide to the collateral organizations for distribution within their constituencies. In addition to a brief overview of accreditation and directions on how to obtain additional information about the process, the *1998 Guide to Student Performance Criteria* lists and defines the thirty-seven criteria that comprise a professional education in architecture.

12 Student Performance Criteria

The program must ensure that all its graduates possess the skills and knowledge defined by the performance criteria set out below, which constitute the minimum requirements for meeting the demands of an internship leading to registration for practice.

The program must provide evidence that all its graduates have satisfied each criterion through required course work. If transfer credits are granted for courses taken at other institutions, evidence must be provided that the courses are comparable to those offered in the program.

The list of performance criteria begins with fundamental skills and knowledge, continues with technical skills and knowledge, and concludes with a focus on practice and societal roles. This sequence is intended to foster an integrated approach to learning that cuts across subject categories. These criteria encompass three levels of accomplishment. [3]

3 As an example of how the team would approach these levels of accomplishment, consider the area of *environmental conservation*. Possible levels of accomplishment in this area are

— *Awareness:* the capacity to correctly recall a basic definition of environmental conservation;

— *Understanding:* the capacity to correctly paraphrase or summarize information about such principles of environmental conservation as minimizing building footprints, reusing and recycling buildings, avoiding the use of non-renewable resources, and avoiding materials that cannot be recycled or recovered; and

— *Ability:* the capacity to correctly apply these principles in the resolution of a design project.

The NAAB criterion on environmental conservation requires only that students demonstrate "understanding."

— *Awareness:* familiarity with specific information, including facts, definitions, concepts, rules, methods, processes, or settings. Students can correctly recall information without necessarily being able to paraphrase or summarize it.

— *Understanding:* assimilation and comprehension of information. Students can correctly paraphrase or summarize information without necessarily being able to relate it to other material or see its fullest implications.

— *Ability:* skill in relating specific information to the accomplishment of tasks. Students can correctly select the information that is appropriate to a situation and apply it to the solution of specific problems.

The NAAB intends to establish performance criteria that assist programs in preparing students for the broad requirements of the profession, while also encouraging educational practices suited to the circumstances of particular programs. In addition to assessing whether student performance meets the expectations of professional education outlined by the criteria, the visiting team will also assess performance in relation to the program's stated curricular goals and content. While the NAAB stipulates the student performance criteria that must be satisfied, it specifies neither the educational programs nor the forms of student work that may serve as evidence of having satisfied these criteria. Programs are therefore encouraged to develop unique learning and teaching strategies, methods, and materials to satisfy these criteria. The NAAB will consider innovative methods for satisfying the criteria, provided the program has a formal evaluation process for assessing student achievement of these criteria and documents the results.

The *APR* must include the following information:

— An overview of the program's curricular goals and content

— A graphic matrix that cross-references each required course with the performance criterion(a) it fulfills.

For the purposes of accreditation, graduating students must demonstrate awareness, understanding, or ability in the following areas:

12.1 Verbal and Writing Skills

Ability to speak and write effectively on subject matter contained in the professional curriculum

12.2 Graphic Skills

Ability to employ appropriate representational media, including computer technology, to convey essential formal elements at each stage of the programming and design process

12.3 Research Skills

Ability to employ basic methods of data collection and analysis to inform all aspects of the programming and design process

12.4 Critical Thinking Skills

Ability to make a comprehensive analysis and evaluation of a building, building complex, or urban space

12.5 Fundamental Design Skills

Ability to apply basic organizational, spatial, structural, and constructional principles to the conception and development of interior and exterior spaces, building elements, and components

12.6 Collaborative Skills

Ability to identify and assume divergent roles that maximize individual talents, and to cooperate with other students when working as members of a design team and in other settings

12.7 Human Behavior

Awareness of the theories and methods of inquiry that seek to clarify the relationships between human behavior and the physical environment

12.8 Human Diversity

Awareness of the diversity of needs, values, behavioral norms, and social and spatial patterns that characterize different cultures, and the implications of this diversity for the societal roles and responsibilities of architects

12.9 Use of Precedents

Ability to provide a coherent rationale for the programmatic and formal precedents employed in the conceptualization and development of architecture and urban design projects

12.10 Western Traditions

Understanding of the Western architectural canons and traditions in architecture, landscape, and urban design, as well as the climatic, technological, socioeconomic, and other cultural factors that have shaped and sustained them

12.11 Non-Western Traditions

Awareness of the parallel and divergent canons and traditions of architecture and urban design in the non-Western world

12.12 National and Regional Traditions

Understanding of the national traditions and the local regional heritage in architecture, landscape, and urban design, including vernacular traditions

12.13 Environmental Conservation

Understanding of the basic principles of ecology and architects' responsibilities with respect to environmental and resource conservation in architecture and urban design

12.14 Accessibility

Ability to design both site and building to accommodate individuals with varying physical abilities

12.15 Site Conditions

Ability to respond to natural and built site characteristics in the development of a program and design of a project

12.16 Formal Ordering Systems

Understanding of the fundamentals of visual perception and the principles and systems of order that inform two- and three-dimensional design, architectural composition, and urban design

12.17 Structural Systems

Understanding of the principles of structural behavior in withstanding gravity and lateral forces, and the evolution, range, and appropriate applications of contemporary structural systems

12.18 Environmental Systems

Understanding of the basic principles that inform the design of environmental systems, including acoustics, lighting and climate modification systems, and energy use

12.19 Life-Safety Systems

Understanding of the basic principles that inform the design and selection of life-safety systems in buildings and their subsystems

12.20 Building Envelope Systems

Understanding of the basic principles that inform the design of building envelope systems

12.21 Building Service Systems

Understanding of the basic principles that inform the design of building service systems, including plumbing, electrical, vertical transportation, communication, security, and fire protection systems

12.22 Building Systems Integration

Ability to assess, select, and integrate structural systems, environmental systems, life-safety systems, building envelope systems, and building service systems into building design

12.23 Legal Responsibilities

Understanding of architects' legal responsibilities with respect to public health, safety, and welfare; property rights; zoning and subdivision ordinances; building codes; accessibility and other factors affecting building design, construction, and architecture practice

12.24 Building Code Compliance

Understanding of the codes, regulations, and standards applicable to a given site and building design, including occupancy classifications, allowable building heights and areas, allowable construction types, separation requirements, occupancy requirements, means of egress, fire protection, and structure

12.25 Building Materials and Assemblies

Understanding of the principles, conventions, standards, applications, and restrictions pertaining to the manufacture and use of construction materials, components, and assemblies

12.26 Building Economics and Cost Control

Awareness of the fundamentals of development financing, building economics, and construction cost control within the framework of a design project

12.27 Detailed Design Development

Ability to assess, select, configure, and detail as an integral part of the design appropriate combinations of building materials, components, and assemblies to satisfy the requirements of building programs

12.28 Technical Documentation

Ability to make technically precise descriptions and documentation of a proposed design for purposes of review and construction

12.29 Comprehensive Design

Ability to produce an architecture project informed by a comprehensive program, from schematic design through the detailed development of programmatic spaces, structural and environmental systems, life-safety provisions, wall sections, and building assemblies, as may be appropriate; and to assess the completed project with respect to the program's design criteria

12.30 Program Preparation

Ability to assemble a comprehensive program for an architecture project, including an assessment of client and user needs, a critical review of appropriate precedents, an inventory of space and equipment requirements, an analysis of site conditions, a review of the relevant laws and standards and an assessment of their implications for the project, and a definition of site selection and design assessment criteria

12.31 The Legal Context of Architecture Practice

Awareness of the evolving legal context within which architects practice, and of the laws pertaining to professional registration, professional service contracts, and the formation of design firms and related legal entities

Humanities, Social Sciences and Communication Department
Objectives and Outcomes Assessment Summary
2002 - 2003

1. Program Educational Objectives, Outcomes and Accreditation Status

The Department of Humanities, Social Sciences and Communication developed the Educational Objectives and Outcomes for the Bachelor of Science in Humanities and for the Bachelor of Science in Business Management and Administration programs. The Educational Objectives and Outcomes have not yet been developed for the Bachelor of Science and the Master of Science in Technical Communications. A new director for the Technical Communications program will start in August 2002 and in the Fall of 2003 these objectives and outcomes will be developed.
No outside professional accreditation standards apply for the programs offered by the department. The department is accredited by the Higher Learning Commission of North Central Association as part of the university' s overall accreditation.

a) Educational Objectives for the Bachelor of Science in Business Management

All graduates of the Bachelor of Science in Business Management must meet the undergraduate General Education Requirements as identified by Lawrence Technological University in the six basic statements of the core curriculum. In addition, graduates with the degree will be able to demonstrate the following:

- advanced knowledge of the field of business management
- expertise in applying knowledge in various business disciplines
- leadership skills (consensus building, decision-making, team-building ability to take risks, etc.)
- ability to work in teams
- effective verbal, written and visual technical communications skills
- creative, critical thinking and problem-solving skills
- general knowledge of mathematics and science
- entrepreneurial characteristics and skills
- commitment to contributing to the community and society

b) Educational Objectives for the Bachelor of Science in Humanities

Graduates of the Humanities program will:

- posses the problem-solving and critical judgment skills to be competent citizens in an ever-increasing technological society.
- be able to compete successfully in graduate school, or in those areas of the work place where humanities graduates are sought.
- be able to communicate and analyze orally and in writing a global and societal context.
- be able to produce effective oral, graphic and written communication.
- be able to conduct original research - that is be able to gather, analyze and interpret data from print, electronic and primary sources.
- be able to function as part of a multi-disciplinary team.
- recognize the need for, and ability to engage in life-long learning.

c) Educational Objectives for the Bachelor of Science in Psychology
The educational objectives for the Bachelor of Science in Psychology are in development.

d) Educational Objectives for the Technical Communications Program
Graduates of the Bachelor of Science in Technical Communication program will show:

- oral presentation competence, which includes competence in using appropriate presentation media
- clear, concise, and coherent writing skills
- skills for the analysis of the writing process
- effective analysis of diverse rhetorical situations
- competence with relevant electronic presentation and publication media, which includes integrating and analyzing multimedia approaches to communication delivery
- effective team problem-solving skills
- effective interpersonal skills for professional contexts
- competence in research methods

In addition graduates of the Master of Science in Technical Communication will demonstrate

- Initiative and Resourcefulness
- Professional Adaptability

2. Assessment Activities and Assessment Results

a) Assessment of Student Work in World Masterpieces courses
HSSC Core Coordinator Dr. Melinda Weinstein called for random samples of A, B, and C essays written in World Masterpieces sections to be provided by all faculty teaching the courses. With some exceptions, faculty members provided the essays. In early January 2003, and again in May, Dr. Weinstein and Professor Barry Knister met for half-day blind reviews of the essays.

Conclusions:
Although no names of instructors were associated with specific graded papers, the two readers agreed that a distinction was evident in papers written for and graded by full-time and part-time faculty members. Weinstein and Knister concluded that, in general, full-time faculty demonstrated a higher level of rigor in adhering to the department' s published standards for grading (i.e., the Banned Error List—see attachment-- and the then-tentative writing rubric). This conclusion argues in favor of devising means for improving levels of thoroughness in the essay-grading process. Such methods might include department workshops and joint oversight review. Weinstein and Knister recommend that future essay-reviewing sessions include adjunct faculty, and that participants be compensated at the standard hourly rate for part-time classroom instruction. Such an approach will promote both fairness and the perception thereof in the process.

b) Revision of Writing Standards
In the fall of 2002, Professor Knister was asked to take Dr. Weinstein' s place on the university' s Assessment Committee. He worked with colleagues within the department to modify Dr. Weinstein' s tentative rubric for grading written work, produced the previous spring. The process concluded with a meeting in March 2003 of a committee of the whole made up of

full-time members of the department. The meeting was led by the chair, Dr. Gonzalo Munevar. Consequent to this meeting, a new rubric was approved, to be applied in all courses where applicable within HSSC (see attachment titled " HSSC GUIDELINES FOR WRITING PAPERS").

c) Assessment of Student work for upper-division HSSC History and Literature courses
In accordance with a feature of last year' s action plan that could not be implemented, papers will be collected in 2003-04 in upper-division HSSC History and Literature courses, for the purpose of assessing student work.

d) Assessment in the Technical and Professional Communication Program
In addition to valuable leadership being provided to the university' s Committee on Professional Communication, Technical Communications program director Dr. Brian Pedell is currently working with Tech Comm faculty to establish educational objectives and outcomes for BS and MS Technical Communications degrees. The department is taking a " Cumulative Skills Building" approach to program assessment. Tentatively, the plan will rely on a process similar to the one being implemented in both Masterpieces and Foundations/Development courses—that is, " blind" readings of randomly selected student work, this complemented by assessment of student oral presentation/communications skills.

e) Oral Communications Assessment Leadership
Tech Comm Professor Kevin Kelch is providing leadership in formulating workable methodologies that can be used throughout the university for the important task of assessing *verbal* communications skills of LTU students. He reported on this work to the university' s Assessment Committee in the spring of 2003, and will do so again in the fall. He is making significant progress in this difficult area.

f) Assessment Plan for the Business Management Plan
Business Management program director Dr. Larry Johnson has established an assessment plan and schedule of implementation for the Bachelor of Science degree in Administration. The plan was initiated last year (see attachment titled " Assessment Program for Business Management").

3. Action Plan for 2003-2004

In the cycle of assessment-related activities in the department' s several program areas, the following work will be accomplished:
--Department-wide dissemination and implementation of the approved standards for grading student written work: HSSC GUIDELINES FOR WRITING PAPERS, and the Banned Error List (see attachments).
--Collection and evaluation of A,B and C graded essays taken from upper-division courses in both English and History sections of the department. Where possible, both adjunct and full-time faculty will take part in the evaluations.
--Class visitations, applicable to instructors who have yet to be observed in the classroom.
--Completion of the formulation of " cumulative skills building" approach to evaluating both written and oral student work. This will be done by the Technical Communications faculty.
--Continuation by the director of the Business Management program of the process of assessing student work and program progress (see attachment titled " Assessment Program for Business Management").

Final Note

Significant change is not always easily documented. Illustrative of this is the instance of a specific, conscientious instructor within the department who, after being observed, was provided with insights that led him to a major shift in teaching strategy. Where he had relied exclusively on lecture, he was helped to develop a more Socratic, discussion-oriented approach. His teaching improved (as reflected in student evaluations), and he found the change resulted in greater personal satisfaction in his work.

It is also worth pointing out that other, highly positive results often develop from informal assessment efforts that are not part of any Action Plan or documented strategy. A good example is provided by the History component of the Core Curriculum, specifically the course titled Development of the American Experience. Collegial discussions among instructors and the department chair led to the conclusion that texts being used in the course failed to accomplish course goals. As a result, faculty arranged for the "custom publishing" of a set of readings they believed would more precisely meet course needs. These efforts bore fruit, and the book, tailor-made for Development of the American Experience, is now used in all sections.

Submitted by Barry Knister, Associate Professor, HSSC

Appendix

Humanities, Social Sciences and Communication

Humanities, Social Sciences, and Communication
BANNED ERROR LIST

A paper with one of the errors listed below loses half a letter grade (e.g., from B to B-). Additional errors of the same category (e.g., three sentence fragments) will not lower the grade further, but additional errors in other categories will (one-half letter grade per category).

1. **Fragments:** Fragments are groups of words that appear to be sentences but lack either a subject or a verb or both.

   Incorrect: *We talked about what we like to do most. For example, swimming and golf.*

   Correct: We talked about what we like to do most: swimming and golf.

   NOTE: Professional writers often make intentional use of sentence fragments. Once you are a professional writer, you too will be free to employ this device.

2. **Comma Splices:** A comma splice results when two sentences are joined by only a comma.

   Incorrect: Most people fall in love at first sight, I fall in love at first sound.

   Correct: Most people fall in love at first sight, but I fall in love at first sound. Or: Most people fall in love at first sight. I fall in love at first sound.

3. **Subject–Verb Agreement:** Readers are confused when the subject and the verb of a sentence do not agree in number (singular or plural) or person (first, second, or third).

   Incorrect: High levels of air pollution causes damage to the lungs.

   Correct: High levels of air pollution cause damage to the lungs. (The subject is levels, not pollution.)

   Incorrect: My sister and my friend has paintings in the show.

   Correct: My sister and my friend have paintings in the show. (The subject refers to two people.)

4. **Run-ons:** These occur when two sentences are fused together with no punctuation.

Incorrect: In life, Chopin's mother did the same as Chopin's character Mrs. Mallard does in "The Story of an Hour" she takes advantage of the unplanned circumstances.

Correct: In life, Chopin's mother did the same as Chopin's character Mrs. Mallard does in "The Story of an Hour": She takes advantage of the unplanned circumstances.

5. **Pronouns:** A pronoun takes the place of a noun in writing and needs to agree in number (plural or singular) with the noun.

Incorrect: A hero has tremendous influence on the people around them.

Correct: A hero has tremendous influence on the people around him.

Pronouns should not have ambiguous or vague references:

Incorrect: Wildlife has been subjected to both pollution and the destruction of natural habitats. This has led to a decline in wildlife population.

Correct: Wildlife has been subjected to both pollution and the destruction of natural habitats. This combination has led to a decline in wildlife population.

6. **Other problem areas:**

Do not confuse its and it's. It's means it is. Do not confuse your and you're, nor who's and whose. Do not use there for their or for they're, nor to for too or for two.

THESE EXAMPLES ARE MERE ILLUSTRATIONS. A good writer's handbook will explain in greater detail what these errors are and how to avoid them.

3-21-2003

To: All HSSC faculty members

From: Gonzalo Munévar, Chair

Re: Electronic version of HSSC Writing Guidelines

In your mailboxes you have probably already found a package that includes the new Guidelines for writing papers assigned in our department. As I said in the memo also included in that package, I trust that we can count on your cooperation to improve the level of writing in our department. Please find attached the electronic version of the Guidelines. You may wish to post them in your courses' Blackboard websites. If you also decide to use this document in its electronic rather than its paper form, you still need to notify Joyce (in this case, let her know that you will not require any copies because you will use Blackboard instead).

In any event, please do look through the package in your mailbox, for it contains some other important information.

Thank you for your cooperation.

HSSC GUIDELINES FOR WRITING PAPERS
(2003)

Requirements for a "C" paper:

_____ write on the assigned topic

_____ provide a thesis statement (a statement you defend/explain in the body of the paper)

_____ make an attempt to support the thesis with reasons, examples, evidence, and references to appropriate texts

_____ *demonstrate that you have read the pertinent material with some attention (e.g., your details are generally accurate and your interpretations do no violence to the text)*

_____ provide citations from assigned and other valid sources

_____ *avoid errors of usage, style, grammar and spelling that impair understanding of the meaning of your paper*

Requirements for a "B" PAPER (in addition to those for a "C" paper):

_____ your thesis statement is coherent and clear

_____ *your support for the thesis is largely successful, i.e., your reasons/evidence in favor of the thesis are both plausible and relevant, your examples helpful, and your textual references pertinent*

_____ *you demonstrate a solid understanding of the material by offering clear expositions of pertinent passages and by identifying aspects of the text (or the subject matter) relevant to the issues involved*

_____ *you attempt to take the "other side" into account (e.g., you consider alternative accounts or objections to your thesis that reasonable people might bring up)*

_____ *your citations are properly done (MLA style for literature courses, APA for many others)*

_____ *your paper is largely free of errors of style, usage, grammar, and spelling*

Requirements for an "A" PAPER (in addition to those for a "B" paper):

_____ *you not only take the "other side" into account but actually give strong reasons why your own approach is preferable*

_____ *you show insight, originality, creativity, or imagination (e.g., through at least one of the following)*

* *a novel but well-defended interpretation of some significant view or problem*

* *a presentation so clear or concise that important features of the subject become more accessible to the reader than they were in the text and class discussion*

* *an application of the subject to a novel situation (e.g., to apply a solution to a new kind of problem, or to forge connections with other areas of endeavor)*

* *an illuminating reformulation of the issue under discussion*

* *a very perceptive argument that goes well beyond what appears in the text or was discussed in class*

_____ *your paper is virtually free of distracting errors of style, usage, grammar, and spelling*

Additional considerations:

The BANNED ERROR LIST will be applied and the grade lowered when applicable.

YOUR PAPER WILL RECEIVE A GRADE OF "C-" or "D" if it fails to fulfill the requirements for a "C" or if its number of banned errors bring it below a "C," but only as long as you still demonstrate that you have read the material for the course.

If not even the last requirement is met, your paper will receive an "F."

Mathematics and Computer Science Department
Objectives and Outcomes Assessment Summary
2002 - 2003

1. Program Educational Objectives, Outcomes and Accreditation Status
There is no professional accreditation for any of the programs offered by the department. The department is accredited by the Higher Learning Commission of the North Central Association as part of the university' s overall accreditation.

a) Educational Objectives for the Bachelors of Science in Mathematics, Computer Science and Mathematics Computer Science
All Mathematics/Computer Science majors will:

- possess problem- solving and modeling skills, and be able to synthesize and analyze information in abstract as well as in applied contexts.
- be able to effectively communicate mathematical and algorithmic ideas both orally and in written form.
- be able to learn new technologies.
- be able to 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.
- learn to identify the knowns, unknowns, and principles needed to solve a problem. They will be able to obtain and verify solutions using symbolic, graphical, and numerical techniques, and computer simulation, as needed.
- have a complete understanding of a computer language (syntax, semantics, terminology), be able to logically develop problem-solving algorithms, determine speed and memory requirements, and develop and debug complex code.

b) Educational Objectives for the Master of Science in Computer Science are
Graduates for the MSCS will:

- possess a thorough understanding of the theoretical concepts and practical uses of computer science.
- develop critical and creative thinking skills in mastering new topics required to understand and solve problems in the area of computer science.
- demonstrate a sufficient depth of knowledge in a substantive area computer science to pursue advanced practical work in industry.
- have very good written and oral communication skills especially in technical areas.
- A comfortable and congenial environment should be created that encourage the interaction and exchange ideas between students and faculty.

c) Educational Objectives for Mathematics Core Goals
All students will:

- be placed in a mathematics course corresponding to their demonstrated skill level.
- possess mathematical problem-solving skills applicable to living in global society.
- be able to synthesize and analyze information in applied contexts.
- be able to communicate ideas using mathematics both orally and in written form.
- be able to learn new technologies.

- be able to apply mathematical principles within their chosen discipline and as responsible citizens and effective professionals.
- be able to use and understand the use of symbolic and graphical techniques within their discipline.

2. Assessment Activities and Assessment Results

During the academic year 2002-2003, the Department of Mathematics and Computer Science was active in several areas.

a) Assessment of Placement of Students upon Entering Lawrence Tech

Activity:
With the help of Mary Thomas from the Provost's Office, the placement of first-time college students in courses in mathematics in mathematics was correlated with their grades in those courses.

Result:
There was virtually no correlation between placement and grades.

Analysis:
It is not totally clear that correlation should be observed, as many other factors enter into the picture. To be accurate, a correlation study should probably have a control group that is not subject to placement. Of course, Lawrence Tech is unlikely to allow such a control group to exist. Nonetheless, the fact that there was no correlation supports the already existent view within the mathematics faculty that a better placement exam could be used.

b) Assessment of Student Performance in Basic Studies

Activity:
The department feels that one way to evaluate effectiveness in teaching of courses below the calculus level is the use of common final exams. This is particularly important in this area because many adjunct faculty members teach these courses, and it is difficult to be confident that all faculty members are covering the same material.

Result:
The department agreed that initially a common final exam in Intermediate Algebra would be tried. There were not enough sections to make this attempt in the Spring 2003 term, so implementation was deferred to the 2003-2004 academic year.

c) Assessment of Student Performance in Service Courses

Activity:
The department feels that it is necessary to assess student performance at some suitable point in the academic career of students who are taking courses in mathematics pursuant to majors in other disciplines. Since our largest body of service courses is taught to engineers, the Calculus sequence was the first place considered. The first proposal was a common final exam at the end of Calculus 2, a course in which differentiation and integration skills, as well as the ability to coordinate those skills to study more abstract topics such as sequences and series, are taught.

Result:
A common final exam was given to the day sections of Calculus 2 in Spring 2003. This exam was co-written by the three teachers of those sections.

Analysis:
One problem with final exams is that they fulfill many purposes. One is to test the course cumulatively at the end of a term. Another is to emphasize topics that have been particularly troublesome for students during the particular term, so that those students get further exposure to those topics. This latter purpose is in some conflict with the goals of the final exam written for assessment purposes describe above. The exam produced in Spring 2003 paid strong attention to this latter purpose, so it was deemed to have limited value as an assessment tool for the intended purpose.

d) Assessment of Writing in the Curriculum

Activity:
Papers from senior projects and from mathematical modeling were among those submitted for the first analysis of writing by a committee selected by the Assessment Committee of the entire university.

Analysis:
The above committee analyzed a subset of the papers submitted. The results were not available during the academic year 2002-2003, but it was known that much work on writing across the curriculum is needed.

3. Action Plan for 2003-2004

a) Assessment of Placement of Students upon Entering Lawrence Tech

The department plans to implement a new placement exam during the academic year 2003-2004. Professors James Nanny and Gloria Rivkin have already worked on such an exam, and it should be in use soon.

b) Assessment of Student Performance in Basic Studies

Professor James Nanny has agreed to write the common final for Fall 2003. This will be a "blind" final exam; that is, the instructors actually teaching the course will not see the final exam before it is given, although they will have input into what topics will be covered. Professor Nanny will also grade the exam, to assure uniformity of grading.

c) Assessment of Student Performance in Service Courses

For Fall 2003, Professor Arlinghaus has agreed to write and grade a " blind" final exam for Calculus 2 aimed at assessing overall performance. As he is not one of the instructors in Calculus 2 this term, there will be no temptation to emphasize topics peculiar to the specific section being taught. The instructors have supplied input as to what percentage of time is spent on the various topics, so that the exam will be suitably weighted generally. Professors Sonia Henckel and Ruth Favro have agreed to look at the exam and offer suggestions to improve it

before the exam is actually given. Analysis will take place during the Spring Term. A common final will also be given in spring term also.

d) Assessment of Writing in the Curriculum

During Fall 2003, Professors Ruth Favro and William Arlinghaus have agreed to increase the amount of activity in writing required in mathematical modeling and linear algebra courses to imitate more closely the requirements for papers that would be written in composition and literature courses.

In addition, Professors Michael Merscher, Ruth Favro, and William Arlinghaus have agreed to look at the senior projects submitted in Fall 2003, in order to analyze the needs of the department where writing, both writing of English and writing of Mathematics, is concerned. The department was not in full agreement as to what those needs were, so this initial analysis is being made to assess those needs.

Natural Sciences Department
Objectives and Outcomes Assessment Summary
2002 - 2003

1. Program Educational Objectives, Outcomes, and Accreditation Status

The Department of Natural Sciences offers two programs that are accredited by outside agencies. The B.S. in Chemistry (Option 1) is certified by the American Chemical Society, but this certification does not require ongoing assessment of objectives and outcomes. The Master of Science Education program is accepted by the Michigan State Board of Education. While this acceptance is periodically renewed, it again does not require ongoing assessment of objectives and outcomes. Accordingly, the Department faculty set education objectives and outcomes based on the nature of the individual programs.

a) Educational Objectives for the Bachelor of Science in Chemistry and Environmental Chemistry

- Graduates will demonstrate written, oral, and visual communications skills appropriate to laboratory reports, technical writing, and public presentation of scientific information.
- Graduates will demonstrate skill in analytical thinking appropriate to their discipline.
- Graduates will be able to work in teams, and will have opportunities to develop leadership abilities.
- Graduates will feel that they have been effectively prepared for their professional careers.
- Graduates will demonstrate knowledge in four major division of chemistry:
  organic/biochemistry,
  inorganic chemistry,
  analytical chemistry, and
  physical chemistry.
- Graduates will demonstrate competence, appropriate to their program, in:
  Use of modern laboratory instrumentation
  Chemical synthesis and analysis
  Use of the chemical literature
- CHM1154 (Introduction to Chemical Principles). Students will be adequately prepared for CHM1213 (University Chemistry 1)

b) Educational Objectives for the Bachelor of Science in Physics and Physics/Computer Science

- Graduates will demonstrate knowledge in the following areas of Physics:
  Optics,
  Quantum Mechanics,
  Theoretical Mechanics,
  Statistical Mechanics,
  Thermodynamics,
  Relativity,
  Electricity & Magnetism, and
  Radioactivity
- Graduates are satisfied that all areas of Physics listed in goal (I.) above have been competently taught.

- Graduates demonstrate competence in using modern laboratory instrumentation in the physics labs.
- Graduates will demonstrate skill in analytical thinking appropriate to Physics which includes data analysis.
- Graduates will demonstrate the ability to do independent Theoretical or Experimental Research at the undergraduate level.
- Graduates will demonstrate an ability to use the physics literature at a level appropriate for BS physicist. (Note: This goal and strategies articulate with the University goals in Communication.)
- PHY1154 (Introduction to Physical Principles) students will be adequately prepared for PHY2413 (University Physics 1) and PHY2213 (College Physics 1).
- Graduates will demonstrate written, oral, and visual communications skills appropriate to laboratory reports, technical writing, and public presentation of scientific information. (This goal and strategies articulate with the University goals in Communication)
- Graduates will be able to work in teams, and will have opportunities to develop leadership abilities.
- The Physics program will be guided by national norms.

c) Educational Objectives for the Master of Science Education

- To provide teachers with a broad base of scientific knowledge appropriate for middle and elementary school instruction, as well as techniques and tools that allow successful presentation of scientific concepts to their students.
- To provide teachers with scientific knowledge and updated teaching techniques that will help them create a classroom environment where science is exciting, challenging, student centered, and inquiry-driven.
- To provide teachers with the graduate educational experience needed to obtain the professional certificate or the Science (DX) endorsement.

2. Assessment Activities and Assessment Results

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

Chemistry:

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

Ia. and Ib. Development of writing and lab report rubrics: Example rubrics have been developed and adopted by the Chemistry faculty, with the understanding that they can be adapted for individual courses. Informal application to lab reports was carried out in CHM3421 (Physical Chemistry 1 Lab), but no more systematic assessment was made this year since the rubric was not developed in time to include in course syllabi.

Eight papers from CHM3403 were submitted as writing samples to Mary Thomas.

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

IVa. Course objectives were developed for the following courses: CHM1223, CHM1232, CHM2313, CHM2323, CHM3403, CHM3421, CHM3423, CHM3452, CHM3463, CHM3623, CHM4522, CHM4643.

IVb. Students were surveyed on attainment of course objectives in the following courses: CHM3421, CHM3423, CHM3452. In all cases, it was found that students had a high degree of confidence overall in their attainment of the course objectives that had been tested, but not in those that had not been tested at the time of the survey. We may adjust the administration of the survey to respond to this. Overall, the objective of 80% " somewhat confident" or " very confident" averaged over all questions was met or nearly met in all three courses:

CHM3421	100% > 2.00 (4 of 4), average score 2.63	
CHM3423	75% > 2.00 (3 of 4), average score 2.15	
CHM3452	100% > 2.00 (7 of 7), average score 2.29	("somewhat confident" = 2)

A database is being constructed for storing this data.

Students in other courses were not surveyed, in some cases because the course was not taught this year (CHM4643) or was taught only in the Fall term, before objectives were developed (CHM2313, CHM3463). In other cases (CHM1223, CHM1232, CHM2323, CHM3403, CHM3623, CHM4522), administration of the survey was neglected. An important lesson here is that the development of assessment tools does not imply that, in the stress of finishing the term, the tools will be used, at least until their use has become routine. A program of reminders will be included in the duties of the assessment officer to respond to this.

IVc. The department chair conducted a formal exit formally interview with each graduating senior about our programs. At the end of each interview, the degree candidate was invited to complete a written feedback form that included answers to a structured set of questions as well as free form comments. Comments obtained in the personal interview were overwhelmingly positive. All were pleased with their choice of Lawrence Tech and would recommend the school to others interested in science majors. Students were especially appreciative of the extent to which the department accommodated their needs in scheduling and offering courses. Graduates regarded the level of preparation as high. Faculty were said to be always accessible and available. Students pursuing dual majors rated LTU science courses highly when compared with those in their other major. In the paper feedback, some students expressed issues with organic chemistry. Chemistry majors expressed some reservations about the ability to do independent research, a concern not shared by physics majors (see below). This difference may arise from the requirement that each student pursue an independent project in attaining the physics degree.

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

Vb. The ETS exam was administered to all chemistry-graduating seniors. Results are expected in fall 2003.

Vc. Departmental review of exam results: Faculty were surveyed as to where in our curriculum the material related to each question on the ETS exam appears. We found that every question was covered in our curriculum.

Vd. Confidential employer survey. This was not developed. Because of the small number of our chemistry graduates employed at with any given employer, we are not confident that we can manage such a survey with the confidentiality required. The viability of this strategy will be reviewed next year and it will be either followed up or eliminated.

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

VIIa. Align CHM1154 final exam and CHM1213 placement assessment: The assessment was given to all CHM1154 students, Fall 2002. Analysis of the results is not yet complete.

VIIb. CHM1154 grade / CHM1213 grade correlation study: Grades were correlated for 417 students who took both courses once during the period fall 1994 – fall 2002. Results showed that 60% of CHM1154 students getting C or better received a C or better in CHM1213, indicating that our objective of 80% was not met over that extended period. We are analyzing the data further to determine whether this figure has changed over the years. It is also worth noting that when the standard is changed to C- (i. e. minimal competency in both courses), this figure rises to 76%, indicating that our objective is very threshold dependent.

This exercise in quantitative assessment has been and will continue to be very thought provoking. In particular, we intend to look at our data more closely to determine whether our initial objective is appropriate or will need to be modified to serve as a useful benchmark. We also need to consider looking at the relative performance in CHM1213 of students who have taken CHM1154 vs. those placed directly into CHM1213, as a benchmark for the preparative "value added" of CHM1154.

Physics:

I. " Graduates will demonstrate knowledge in the following areas of Physics..."

Ia. The ETS exam was administered to all chemistry graduating seniors. Results are expected in fall 2003.

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. This written survey was given as part of the exit interview discussed above for chemistry. The department chair conducted a formal exit interview with each graduating senior about our programs. Comments obtained in the personal interview were overwhelmingly positive. All were pleased with their choice of Lawrence Tech and would recommend the school to others interested in science majors. Students were especially appreciative of the extent to which the department accommodated their needs in scheduling and offering courses. Graduates regarded the level of preparation as high. Faculty were

said to be always accessible and available. Students pursuing dual majors rated LTU science courses highly when compared with those in their other major. In the paper survey some students expressed issues with their preparation in electricity and magnetism, which is no longer taught within the department. Unlike chemistry majors, physics majors expressed no reservations about the ability to do independent research.

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

IIIa. 80% of students getting B+ or better in physics lab courses: PHY1181, PHY3661, PHY4781.

This year' s results were:

PHY1181	0% ≥ B+	(since no students completed the course, the meaning of this datum is unclear)
PHY3611		(not taught in 02-03)
PHY3661	67% ≥ B+	for students completing the course (2 of 3)
		2-year running average:
	86% ≥ B+	for students completing the course (6 of 7)

So our objectives were not met this year in PHY3661, but have been met over the period since assessment began.

IV. "Graduates will demonstrate the ability to do independent Theoretical or Experimental Research at the undergraduate level."

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

The student who received an " incomplete" last year completed PHY4922 this year. There were no other students in this course this year, so this objective was met.

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

VIIb. PHY1154 grade / PHY2213 & PHY2413 grade correlation study: Grades were correlated for students who took both courses once during the period fall 1994 – fall 2002. Results showed that 71% of PHY1154 students getting C or better received a C or better in PHY2213 (55 students); for PHY2413 the figure was 76%. These figures indicate that our objective of 80% was not met over that extended period. We are analyzing the data further to determine whether this figure has changed over the years. When the standard is changed to C- (i. e. minimal competency in both courses), these figures rise to 78% (PHY2213) and 80% (PHY2413). For further comments, see Chemistry Objective VII.

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

Three papers from PHY4912 were submitted as writing samples to Mary Thomas.

Master of Science Education:

II. " Graduates are satisfied that all areas of science have been competently taught."

Ia. Exit interview of graduates.

IIa. Administration of assessment tool created for FIPSE grant.

Neither of these was carried out in 2003. The appropriateness for assessment purposes of the FIPSE survey will be reviewed in time to make it possible to use it in the spring of 2004.

3. Action Plan for 2003 – 2004

The action plan for the Department of Natural Sciences for 2003 – 2004 consists of those items in the " Timeline" column of the attached matrix planned for that academic year, as well as minor additions noted above. In the case of the Chemistry program, these have yet to be decided, but will probably emphasize those connected with Teamwork and Leadership (Goal III).

Civil Engineering Department

Objectives and Outcomes Assessment

Summary 2002-2003

1. Program Educational Objectives, Outcomes, and Accreditation Status

Civil Engineering Educational Objectives

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

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

Civil Engineering Program Outcomes

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

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

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

Program Objectives for the Masters in Civil Engineering Degree

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

- Designed to provide students with a thorough understanding of the design process as it relates to the principles of engineering.
- That prepares students to approach the solution of problems with an understanding of the mechanics of the problem, an appreciation for a multidisciplinary approach to solving complex problems, and a practical design methodology that considers realistic and constructible products of design.
- That prepares students to apply contemporary computer based skills and products for the solution of advanced civil engineering problems.
- That prepares students to effectively communicate in a professional engineering environment.
- Designed to provide experience in advanced materials and contemporary applications in civil engineering design and construction.

A. Assessment Tools for 2002-2003

Assessment Tool	Description	Performance Criteria
FE Exam	The FE Exam is a nationally normed exam that provides a direct measurement of student abilities on a topic-by-topic basis. It provides a comparison between LTU examinees and the corresponding results from comparison institutions on a topic-by-topic basis. This emphasizes strong and weak points within the program.	Perform at or above the national average for comparative Carnegie Master institutions.
Exit Interview	The chair conducts exit interviews of graduating students. The exit interviews provide a summative view of what is happening in the department and gives an indication of overall student satisfaction.	Qualitative evaluation of student satisfaction and concerns. Qualitative as well as direct evidence that we are meeting our outcomes.
Exit Survey	The exit interview includes a form to be filled out by students regarding their education at LTU. This survey is directly connected to the Exit Interview.	Qualitative evaluation of student satisfaction and concerns. Qualitative as well as direct evidence that we are meeting our outcomes.
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 on if the students meet the published outcomes of the department.
Professional Evaluation of Senior Projects Day	Advisory Board members (and Employers) are invited to attend Senior Projects Day (Spring Semester) to view and evaluate oral presentations of senior projects. Written evaluations of the Senior Design Projects/Presentations are requested from attendees.	General satisfaction by the Advisory Board (and/or employers). A minimum of a 3.5 on a 5 point scale.
Faculty Evaluation of Senior Projects	Similar to evaluation of senior projects by Advisory Board however, faculty evaluate Senior Design presentations in both semesters.	General satisfaction by the Faculty. A minimum of a 3.5 on a 5 point scale.
Course Objectives	Learning objectives have been written for each undergraduate civil engineering course. Students are surveyed on their ability to perform objectives at the conclusion of the course.	85% of the students surveyed are capable of performing the desired outcome.
Performance Appraisals	Performance appraisals are assessments of student performance in individual courses. These are opportunistic documented evaluations of student performance that present themselves, but are not included in the routine assessment program.	Case dependent.
Focus Groups	A formal assessment tool performed by an independent mediator. It has been found that the students like the opportunity to present their viewpoints to the department directly but that the anonymity of a mediated session is also beneficial. Focus groups can also be used to address concerns seen in other assessment tools.	Since the purposes of the meetings is varied, it is not possible to pre-select specific performance criteria. Rather, the general target of high student satisfaction is expected.

2. Assessment Results for 2002-2003

Overall, assessment results for this academic year were very positive. Exit interviews conducted with the Department Chair indicated that overall, the students are satisfied with the department and their LTU education. Students are very pleased with the faculty with the exception of a couple of adjunct faculty and those situations have been resolved. Students feel they are prepared to enter into the profession and most of them plan to pursue licensure and get an advanced degree. The only negative comments that came up repeatedly was the lack of AutoCAD in the curriculum and the perceived lack of resources and reference material. These two issues are being addressed. There is a plan to integrate additional AutoCAD throughout the curriculum (described below) and to increase (and inform students about) the professional reference material available. The advisory board also conducted interviews with a sample of seniors (10 total) and the board is very pleased with our graduating students. The advisory board believes our students are well-rounded, able to communicate, prepared to enter the profession, aware of contemporary issues, and able to use modern tools. Many advisory board members have been evaluating our students for several years and believe the presentation skills and techniques of our current seniors is stronger than in years past. Finally, the advisory board believes our students embody the University motto of "Theory and Practice" and would consider our graduates for entry level positions at their corporations.

With respect to student achievement of individual program outcomes, each assessment tool utilized addresses multiple outcomes. Additionally, multiple assessment tools measure each outcome. Therefore, to determine if the program outcomes are being met, it is important to systematically consider the entire assessment plan. To accomplish this task, a matrix was generated that indicates the level of student attainment of an outcome based on that particular tool. This matrix is represented in Table I. For a given assessment tool, a number from 1 to 5 was assigned to each outcome that tool is designed to assess. A 1 indicates a low level of student attainment and a 5 a high level of student attainment. These numbers were consensually determined by the faculty based on the results and were limited to half point increments. These values were then used to determine an overall "score" for each program outcome. The overall ranking is not based on an arithmetic mean, but rather a subjective weighting based on faculty input. It is important to note these values are determined by faculty consensus. The faculty decided that any overall score higher than a 3.5 meets program criteria. A score of 3.5 meets the criteria but with some concern and a 3.0 or lower indicates that the outcome is not obtained for the academic year. These numbers are bolded in Table I.

Table I. Assessment/Outcome Matrix-2002-2003 Academic Year

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)
Exit Interviews Fall 2002						4		4	4	4			4
Exit Interviews Spring 2003						4		4	4	4.5			4.5
Advisory Board Interviews						4	5	**3**	5	5	5	4.5	5
Advisory Board Senior Project Spring 2003	3.5		4	4	4		4	**3**		3.5	4		
Faculty Senior Project Spring 2003	3.5		4	4	4		4	**3**		3.5	3.5		
Senior Project Fall 2002	**2.5**		**1.5**	**2**	**2**		**2**	**1.5**		**3**	4		
Course Objectives	4				4						4		
Focus Groups		3.5	4			**3**						**2**	
OVERALL	3.5	3.5	4	4	4	4	4	**3**	4.5	4	4	4	4.5

From Table I, it can be seen that Outcome (h) – " *the broad education necessary to understand the impact of engineering solutions in a global, sustainable, and societal context*" is the only outcome that does not meet faculty expectations. It has been determined that the students do not grasp the concept of sustainability and fall short in understanding the global and societal impacts of their solutions. This will be addressed primarily in Senior Design. The Senior Design sequence will be under the guidance of a new instructor this year, Dr. Donald Carpenter, and there will be an increased emphasis on sustainable design and the societal impacts of their projects. The changes to the Senior Design sequence should have an immediate impact on graduates attaining this outcome. Additionally, this outcome will have increased emphasis in several courses including ECE3424 Geotechnical Engineering and ECE3823 Transportation Engineering.

The other two outcomes that are lower than desired are Outcome (a) – " *an ability to apply knowledge and principles of mathematics, science, and engineering in the solution of civil engineering problems*" Outcome (b) – " *an ability to design and conduct experiments, as well as to analyze data and interpret results.*" Low scores on these two outcomes are most likely because of measurement techniques more than actual non-obtainment by our graduates. It is difficult to assess students capability of Outcome (a) based on a short presentation during senior design which led to the low values associated with the three assessment tools associated with senior project. In the future, Outcome (a) will be more directly measured in courses and also a

heavier weight will be placed on course objectives in the assessment of Outcome (a). In the future, senior project presentations will not be used to evaluate Outcome (a). The concern associated with Outcome (b) is the lack of students designing their own experiments and a limited amount of interpreting results. Several experiments in ECE4544 Hydraulic Engineering and in ECE4761 will be redesigned to address this issue.

In addition to the assessment tools listed in Table B-5, another key assessment tool is the Fundamentals of Engineering (FE) Exam. The FE Exam is not included in the matrix because it serves a different assessment purpose. The FE Exam is not utilized to assess an individual outcome in a given semester or year, but rather is used to track our graduates academic abilities with time in a variety of subjects. The FE Exam is typically reviewed annually in the fall semester, but in this academic year, the review was performed after the April 2003 offering of the examination. The FE Exam results can be found in Appendix IV. In the appendix, the Lawrence Technological University student scores for each topical area, both AM General and PM Civil Engineering Specific are standardized according to the average of all Carnegie Master Comparison Institutions. These are then graphed in two formats. The first format is tracking a specific subject, for example Ethics (Figure B-2), through time. The second format is a graphical representation of all subject topics on a single examination date (Figure B-3). The goal of the department is to be at or above average in all subject areas.

The FE Exam results indicate a declining trend in student-standardized scores over that last two years in most topical areas. This corresponds with an overall passing rate that has gone from significantly above national averages to less than 50%. These declines are of great concern to the Civil Engineering faculty given the curriculum emphasis on professional licensure and practical applications. There are several hypotheses to this decline including academically weaker incoming students, the FE Review course offered on campus being inadequate, and an increase in undergrad responsibilities. The increased responsibilities of program undergraduates is a highly likely culprit with civil engineering undergraduates apparently working more hours off campus than before and, in the spring of 2003, the ASCE regional conference was hosted by LTU. Consequently, the FE Review course was poorly attended by LTU students and the overall FE Exam scores were worse for Spring 2003 than any previously monitored examination. The faculty has decided that the decline warrants a response that will help better prepare our students to perform on the exam. Each full-time faculty member has volunteered to hold a 2+ hour review session on their area of expertise to better prepare student for the PM portion of the examination. In addition, the ASCE student chapter has traditionally offered an FE review course based on the AM subjects and will continue to do so. The format of this review session will be discussed with the student chapter. Finally, while the department does not want faculty to "teach the test," the department chair will encourage faculty (both full and adjunct) to be aware of typical questions offered on the FE exam and to try and integrate those questions into individual courses. Despite the overall decline, there are several topical areas that have consistently been strong including ethics, legal and professional issues, and hydraulics/hydrologic systems.

Another key result from multiple 2002/2003 Assessment measurements indicate student want more AutoCAD exposure in the curriculum. This has been a common complaint by students over the last two years. In response to this concern, the department will adjust the curriculum to incorporate AutoCAD at several points. Currently, basic AutoCAD is offered in ECE1103 CE Computer Applications. This course will be modified to include more advanced AutoCAD

components. Also, the course will be structured differently such that AutoCAD will be covered across the entire 15 week semester and not just in a single 4 week module. AutoCAD will also then be integrated into one of the two surveying sections as a trial. The addition of AutoCAD into ECE1013 Surveying Land Measurement should be a natural fit but the Fall of 2003 semester will serve as a trial. Finally, the department will investigate offering an advanced land development course at the senior level, which would have heavy AutoCAD emphasis for students who desire advanced topics. This course will likely be offered during the 2004/2005 Academic year since new undergraduate courses have a strict approval process.

Finally, the focus group results indicated students had two additional complaints that need to be addressed. The first concern was the lack of posted office hours and quality advising. A new advising procedure will be established during the summer of 2003 to make advising more clear. This procedure is described in detail in Section 1 of this report. Students will be informed of their assigned advisor and be encouraged to meet with them at least once a semester. Their plan of study will be reviewed during that meeting as part of the improved advising procedure. Additionally, all faculty will post office hours and will included additional hours during " Advising Week." The second concern had to do with student not getting the opportunity to design experiments with only Hydraulic Engineering laboratory being cited. Students will get additional opportunities to design laboratory experiments in the Hydraulics Lab and Structural Lab this upcoming year.

b. Incomplete or Postponed Activities

None.

3. Action Plan for 2003-2004.

The Civil Engineering Department has a comprehensive Assessment Plan in place to assess student learning, graduate capability to perform published program outcomes, and overall student satisfaction with our program, our facilities, and our instruction. The Assessment Plan is reviewed and adjusted annually by the Civil Engineering faculty under the guidance of the Coordinator of the Civil Engineering Assessment Program, Dr. Donald Carpenter. A majority of the changes to the assessment plan are minor and typically involve changes in the format/questions of the assessment tools. The Advisory Board is briefed on the Assessment Plan once a year at the fall meeting and also plays an active role in the assessment of our students.

The Assessment Plan for the Civil Engineering Department as of the 2003/2004 academic year utilizes ten assessment tools to determine if the Program Outcomes are being achieved. Each of the assessment tools utilized by the department is listed in Table II along with a brief description and the student performance criteria. Table III has a matrix which indicates which assessment tool is being used to evaluate the individual Outcomes. Table IV is a timeline indicating when each of these tools has been administered in the past two years and when they are scheduled to be administered in the next several years. The assessment plan and corresponding tools are constantly evolving and this document represents the status as of spring of 2004.

Table II Assessment Tools utilized by Civil Engineering Department in 2003/2004

Assessment Tool	Description	Performance Criteria
FE Exam	The FE Exam is a nationally normed exam that provides a direct measurement of student abilities on a topic-by-topic basis. It provides a comparison between LTU examinees and the corresponding results from comparison institutions on a topic-by-topic basis. This emphasizes strong and weak points within the program.	Perform at or above the national average for comparative Carnegie Master institutions.
Exit Interview	The chair conducts exit interviews of graduating students. The exit interviews provide a summative view of what is happening in the department and gives an indication of overall student satisfaction. The exit interview includes a 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.
Exit Survey	A survey of graduating students for them to evaluate whether their capability of meeting departmental outcomes.	90% of the students surveyed are capable of performing desired outcome.
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 on if the students meet the published outcomes of the department.
Professional Evaluation of Senior Projects Day	Advisory Board members (and Employers) are invited to attend Senior Projects Day (Spring Semester) to view and evaluate oral presentations of senior projects. Written evaluations of the Senior Design Projects/Presentations are requested from attendees.	General satisfaction by the Advisory Board (and/or employers). A minimum of a 3.5 on a 5 point scale.
Faculty Evaluation of Senior Projects Day	Similar to evaluation of senior projects by Advisory Board however, faculty evaluate Senior Design presentations in both semesters.	General satisfaction by the Faculty. A minimum of a 3.5 on a 5 point scale.
Student Portfolios	Student portfolios provide a unique perspective on the learning process for typical students at an institution. The portfolios are selective and self-reflective. Each student submits a sampling of their work to be placed in a departmentally maintained portfolio along with a reflective statement documenting their ability to meet Departmental Outcome (c) – design and Outcome (g) – communication.	Periodic review of student portfolios will be performed by a committee consisting of appropriate individuals both inside and outside of the departmental faculty to determine if our departmental outcomes on design and communication are being met.
Course Objectives	Learning objectives have been written for each undergraduate civil engineering course. Students are surveyed on their ability to perform objectives at the conclusion of the course.	85% of the students surveyed are capable of performing the desired outcome.
Performance Appraisals	Performance appraisals are assessments of student performance in individual courses. These are opportunistic documented evaluations of student performance that present themselves, but are not included in the routine assessment program.	Case dependent.
Focus Groups	A formal assessment tool performed by an independent mediator. It has been found that the students like the opportunity to present their viewpoints to the department directly but that the anonymity of a mediated session is also beneficial. Focus groups can also be used to address concerns seen in other assessment tools.	Since the purposes of the meetings is varied, it is not possible to pre-select specific performance criteria. Rather, the general target of high student satisfaction is expected.

Table III Matrix related assessment tool to measured Outcome.

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)
1. FE Exam	X				X								X
2.Exit Interviews						X		X	X	X			X
3. Exit Survey	X	X	X	X	X	X	X	X	X	X	X	X	X
4. Advisory Board Interviews						X	X	X	X	X	X	X	X
5. Advisory Board Senior Project Eval.	X		X	X	X		X	X		X	X		
6. Faculty Senior Project Evaluation	X		X	X	X		X	X		X	X		
7. Portfolios			X				X						
8. Course Description Packages	X				X						X		
9. Performance Appraisals		X	X				X					X	
10. Focus Groups		X	X			X						X	

Table IV Civil Engineering Department Assessment Timeline

Assessment Description	Fall 02	Sprg 03	Fall 03	Sprg 04	Fall 04	Sprg 05	Fall 05	Sprg 06
1) FE Exam	X		X		X		X	
2) Exit Interview	X	X	X	X	X	X	X	X
3) Exit Surveys	X	X	X	X	X	X	X	X
4) Advisory Board Interviews		X		X		X		X
5) Professional Senior Project Evaluations		X		X		X	X	X
6) Faculty Senior Project Evaluations	X	X	X	X	X	X	X	X
7) Portfolios				X				X
8) Course Objectives	X	X	X	X	X	X	X	X
9) Performance Appraisals	X	X	X	X	X	X	X	X
10) Focus Groups	X		X		X		X	

Appendix

Civil Engineering

Exit Interview and Exit Survey – Fall 2002
LAWRENCE TECHNOLOGICAL UNIVERSITY
DEPARTMENT OF CIVIL ENGINEERING

Exit Interview Summary for Fall 2002

Summary:
Exit interviews were conducted on 4 undergraduates who met their requirements in May 2003. Students were given a three-page survey to fill out prior to attending the interviews with Nabil Grace (Department Chair). Additional comments students made during the interview were also documented on this form. All personal information was deleted from the form and the originals are stored in the assessment cabinet. Attached is a copy of the form along with all student comments (both positive and negative). The small sample size makes it hard to determine if we are meeting our goals and outcomes but this is a product of the December graduation class size.

The first eight questions are overview questions regarding general student satisfaction with the department, the faculty, etc. Overall, their experience was positive within the CE Department. A majority of the students felt their education prepared them for the entering the profession (at least at a basic level). Their primary advice to incoming students was be involved and keep communication lines open. There was some dissatisfaction with resources, specifically computer programs and computer accessibility. These problems should be addressed when the new CE Computer Laboratory is completed and the Laptop Initiative is integrated through all four years. There are very few negative *trends* regarding the department, full-time faculty, or adjunct faculty. There are occasional disgruntled comments but they seem to be individual.

Questions 9 through 13 address Outcomes f, h, i, j, and m as indicated by the letter after each question. Every student mentioned at least one of following; project management, graduate school, and licensure with obtaining a PE being the most common career goal. Overall, the responses indicate we are meeting Outcomes i and m. When asked about professionalism, the responses were good with students commenting about ethics, dedication, professional conduct, honesty, and serving society. However, there was no mention of participating in professional organizations after graduation. This could be due to the vague nature of the question. Students also responded positively to the question regarding the impact of their actions on society in a global and sustainable context. Overall, it appears as if Outcomes f and h are being met. Finally, 3 of the 4 students discussed a contemporary civil engineering issue (Outcome j) with only CSO' s being mentioned by two students. The responses we received were good and discussed both sustainability and societal issues involving the environment. This indicates we are meeting Outcome j.

Faculty Input:
Faculty agreed these results show we are meeting our outcomes and no one had specific comments.

Corrective Actions:
Dr. Nabil Grace met with John Tocco and Andrew Rener separately to discuss student complaints. The issue has been resolved with both agreeing to be more aware of student feelings in the future.

LAWRENCE TECHNOLOGICAL UNIVERSITY
CIVIL ENGINEERING DEPARTMENT
Confidential Exit Interview - Fall 2002

1) What were the most constructive aspects of your civil engineering education at LTU?

Nature of Question: Overall Satisfaction

- The most constructive aspects of my civil engineering education is definitely in my senior year where senior projects and lab reports gave me the hands-on, practical training to move on into the work force.
- I feel that the professors were very good at their specific courses. The level of expertise of the staff is excellent.
- The involvement with the variety of tests in environmental, geotechnical and structural engineering as well as the group senior project. The presentations were constructive although I hoped more oral presentations would have been required prior to senior year.
- Senior design course was interesting and pulled all aspects together. ASCE was also a help in the overall process.

2) What were some of the more negative aspects of your civil engineering education at LTU?

Nature of Question: Overall Satisfaction

- Throughout my junior and senior years at LTU, I have been really serious about graduating early, so I took each class seriously. Some negative experiences in being a part of a lab group or project group with members that do not put in their work as group members should. As a member I have found myself on many occasions completing 75-100% of the group work.
- Not nearly enough computer software experience or courses. Should have a class about CAD, and other civil software packages.
- The lack of resources; i.e. Computers, computer software, books···etc. The availability of the noted above resources were not flexible as well. In addition, I hope the communication level between staff and students will be more closely involved.
- Taking on too much at one time. The 4-year plan is not possible to complete while working.

3) Do you feel your education has prepared you for entrance into the civil engineering profession?

Nature of Question: Overall Satisfaction

- Considering the broad field of civil engineering and all the disciplines one can focus on, I feel LTU has done its job on covering the multitudes to make me feel confident about entering any discipline of the civil engineering profession.
- Yes. I feel as, or more prepared than any other grad from a different school.
- Not necessarily the profession. The book knowledge is there and has been strongly developed yet the practice has not been strong enough to be independent of assistance. I suggest more practical teaching strategies be applied.
- Entrance, yes. We have been given the basic information and the future will expand upon it.

4) What would you say to a student who is considering entering the Civil Engineering Department at LTU?

Nature of Question: Overall Satisfaction

- I would advise the student to not be over-ambitious and try to finish early. The workload is substantial, taking fewer classes and keeping a good grade point is the best way to finish.
- Acquire friends within the major as soon as you can because you will help each other out quite a lot.
- If they were sure this is the school for them, I would advise them to keep the communication level between their advisor and the dean to a maximum. To have everything documented and make sure they have a master plan of the classes they were to take.
- Get involved with ASCE and the Civil Lab. Summer internships are also a great way to make some money and determine what you might want to do later.

5) Do you have any suggestions for the improvement of our program?

Nature of Question: Overall Satisfaction

- I understand that enrollment into the civil engineering program is not up to its potential, but I do feel that more senior level classes should be offered in both the winter and fall semesters. (For example: foundation engineering was not available for me in the winter.)
- More civil software experience. Less emphasis on senior project.
- Require students to have a background in cost estimating and bidding group work and construction management as well as more knowledge in business before graduating.
- More involvement with student activities. Create more extra curricular events to get the faculty known by the students. I would also like to see some actual construction or time in the fab lab. This would add to the knowledge and overall experience.

6) What are some of the positive features of the civil engineering faculty at LTU?

Nature of Question: Overall Satisfaction

- I really enjoyed the small classes where I was able to meet with my professors any time to help or guide me through a problem or assignment. The faculty also always tried to meet our demands in terms of rescheduling exams or homework due dates if our schedules needed so.
- Everyone is an expert at what they teach. Adjunct faculty has been great too. Especially Mounir Karam.
- The fireplace, the evolving computer lab.
- I believe that they are all extremely knowledgeable on their respective subjects. Some are willing to spend the extra time if you ask for the help.

7) Are there any negative comments you have about the civil engineering faculty at LTU?

Nature of Question: Overall Satisfaction

- No negative comments on the full time faculty.
- Andrew Rener should not be a professor. Way too little experience. Too young and arrogant.
- The geotechnical/environmental lab needs to be larger
- I believe some can be hard to approach. Research work has also gotten in the way of a professors willingness to assist a student. Also there have been many times I have gone

to them with a question and come out without my question answered and ten more items to do.

8) Do you have any comments specifically regarding the adjunct faculty of our department?

Nature of Question: Overall Satisfaction

- I have one, where if interested I will tell you during the interview.
- Mounir Karam really works hard and truly cares about his students.
- No.
- Yes, I believe that the adjunct faculty do an outstanding job. These individuals put a lot of time and effort into their lesson plan and offer assistance outside of class. They also have a good handle on how the " real world" handles projects.

9) What are your plans after graduation (i.e. work, graduate school, etc)?

Nature of Question: Outcome i and Outcome m

- Although the economy is at its worst in 10 years, I will be trying my best to find a job after graduation.
- Work in Chicago or Minneapolis.
- I plan on working at Ghafari and Associates and consider getting my Masters in Civil Engineering or Construction Management.
- I plan on working for the same company I have been at for 5 years now. I will look into graduate school. Wife, kids, house; you know, the usual.

10) Where do you see yourself professionally and/or personally in 5 years?

Nature of Question: Outcome i and Outcome m

- Because I am a dedicated person and a natural leader, I see myself managing a team of engineers whether it is on a construction project or a consulting team.
- In a position of greater responsibility and a PE delegating a lot more.
- I see myself working as a PE for a large A/E firm.
- Working toward getting licensed and keeping clients happy.

11) What comes to your mind when you hear the word " professionalism" and what does it mean to you to become a member of the civil engineering profession?

Nature of Question: Outcome f

- To be known as a professional to me is an honor and a privilege. Only because it is a title that speaks of dedication, respect, and a constructive role in society. " Professionalism" is the theme I look for in a company to work for.
- It means that lives are in your hands and that must be in the forefront of your mind when designing and/or building.
- I think of " professionalism" as etiquette, a way one should act in a certain environment. To become a member of the civil engineering profession would mean conducting oneself in a way that is respected by all. As well as contributing your services and abilities to your employer.
- Give true opinions; look out for client and public interest. Actually apply ethics to the industry.

12) Do you feel you have the education necessary to understand the impact of your engineering actions on society in a global and sustainable context?

Nature of Question: Outcome h

- Absolutely, over the years at Lawrence Tech, the amount of understanding through design courses and ethical constraints have provided me with sufficient expertise and knowledge on the profession of engineering and its imparts on society.
- Yes, however I don' t believe my education has made me understand that. Its much more common sense.
- To a certain extent. Experience will allow me to be more conscience of my actions.
- Yes, the importance stressed on what can happen if we make a mistake is conveyed. I believe I have been given the background information and will now go off to find the correct use for it.

13) Please discuss a contemporary civil engineering issue or a recent development in civil engineering.

Nature of Question: Outcome j and h

- The CSO (Combined Sewer Outfalls) controversy is an interesting one because of the fact that it was the civil engineers of the late 1800' s and early 1900' s who designed these sewers to solve the problem of sewage backing up into homes and businesses. Although pollution was not an issue or a concern then, it is now. It will require billions of dollars to replace the existing CSOs in more than 900 cities all over the U.S. The EPA and Clean Water Act have adopted strict regulations on the amount of discharge and where to discharge on communities. Fines and penalties are enforced for noncompliance which is leaving smaller communities with empty pockets. The federal government needs to grant or fund a CSO plan to fix the problem.
- The CSO controversy is a hot topic currently. The EPA has been demanding that communities pay millions of dollars to convert CSOs into separate systems. Many communities simply cannot afford to do this despite federal demands to do so. A logical solution needs to be implemented to create a sustainable solution to the problem. Our water supply is a very serious concern, however local governments can' t be expected to generate the cash necessary to solve problems.
- The concern about the contamination in ground water from landfills is still high. The introduction of Geomembrane into the liner system of landfills has greatly reduced the amount of leakage that can flow through. Connections and punctures can still be a problem but construction regulations and inspections can help keep these to a minimum.

Exit Interview and Exit Survey – Spring 2003

LAWRENCE TECHNOLOGICAL UNIVERSITY
DEPARTMENT OF CIVIL ENGINEERING
Exit Interview Summary for Spring 2003

Summary:
Exit interviews were conducted on all 11 undergraduates who met their requirements in May 2003. Students were given a three-page questionnaire to fill out prior to attending the interviews with Nabil Grace (Department Chair). Additional comments students made during the interview were also documented on this form. All personal information was deleted from the form and the originals are stored in the assessment cabinet. Attached is a copy of the form along with all student comments (both positive and negative).

The first eight questions are overview questions regarding general student satisfaction with the department, the faculty, etc. Overall, their experience was positive within the CE Department. A majority of the students felt their education prepared them for the entering the profession and had positive comments for someone considering entering CE at LTU. There were some overall dissatisfaction with other offices within LTU including Library, Registrar, etc. There are very few negative *trends* regarding the department, full-time faculty, or adjunct faculty. There are some disgruntled comments but they seem to be individual. For example, some students feel adjunct faculty are great and try to take as many courses as possible from adjuncts. Other' s say we use too many adjuncts and they are poor teachers. There were repeated negative comments about adjunct faculty Andrew Rener and John Tocco. Student concerns regarding these two adjuncts were addressed (see Corrective Actions).

Regarding program improvement, an upgraded computer lab with functioning CE software was head of the improvements list. While the CE lab recently was upgraded, they are apparently still having problems with viruses and working software. Students are still very adamant about more AutoCAD and more classes using current software. Other repeated comments included more elective courses and additional monitoring of course content. Recent addition of course objectives and course coordinator input should help address the course content concern. Questions 9 through 13 address Outcomes f, h, i, j, and m as indicated by the letter after each question. 7 of the 11 students discussed graduate school or becoming licensed so this would indicate we are falling slightly short of our expectations. However, the Advisory Board interviews indicate otherwise and were directly written to address Outcomes i and m. The questions in this interview were more vague to see what responses we would elicit. Overall, the responses indicate we are meeting Outcomes i and m. According to the exist interview, we appear to be falling short on several aspects of professionalism including participating in professional organizations and service. This is likely due to the vague nature of the question. The words pride, integrity, respect, and ethics were used repeatedly, which is good. Overall, it appears as if Outcome h is being met. 8 of the 11 students discussed a contemporary civil engineering issue (Outcome j) with only CSO' s being mentioned by more than one student. The responses we received were good and indicate we are meeting Outcome j.

Faculty Input:
Nabil Grace: Most of the interviewed students had very good comments about their experience and education at LTU. We may need to consider simplifying the number of questions given on the exit interview sheets. Same questions have been repeated with different words. Some of our graduate was very excited about the new development in the university and the department and

they wished if these changes took place while they are at LTU. Some of them expressed their inertest in joining the graduate program at LTU.

Corrective Actions:

Dr. Nabil Grace met with John Tocco and Andrew Rener separately to discuss student complaints. The issue has been resolved with both agreeing to be more aware of student feelings in the future.

A plan to integrate AutoCAD into additional classes will be developed this year.

LAWRENCE TECHNOLOGICAL UNIVERSITY
CIVIL ENGINEERING DEPARTMENT
Confidential Exit Interview
Spring 2003
(All comments by Dr. Grace are in parentheses)

1) What were the most constructive aspects of your civil engineering education at LTU?
Nature of Question: Overall Satisfaction

- Lab courses – hands on work.
- Evening courses. The ability to learn and work at the same time.
- Knowledge gained. Friends made for life.
- The CE program is great.
- Senior design project was most constructive, although possibly too much work for a student who is enrolled in other classes.
- Very individualized instruction, smaller classes. I felt that with the smaller classes the professors were able to teach the material in the course at a level that was effective. Very friendly and helpful staff. Also senior design project allowed me to incorporate my learning and allowed me to research the concepts and practices I wasn't taught.
- The hands on experience from some of the classes (Dr. Carpenter). Some of the professor's willingness to help outside of class (Khaled Nahlawi). The layout of required classes for undergraduate Bachelors in the flow chart.
- The professors in the civil department are very knowledgeable and willing to help. The small class sizes allow for one on one teaching and learning and don't allow a student to fall behind. (Small size classes are great!)
- The diversity in the curriculum. (Yuen is the best full time faculty).
- ASCE. (Adjunct faculty. Mounir Karam is the best. Tocco is bad. Rener is not fully qualified to be a professor.)
- Working in groups. Real life applications.

2) What were some of the more negative aspects of your civil engineering education at LTU?
Nature of Question: Overall Satisfaction

- Senior project reports – they break up the design process. (Less number of reports.)
- Too much group work.
- Calculus. Current parking problems. (Failed every calculus class)
- The lack of tech. In the first 4 years of my education. (No web – no geotech lab – the last 2 years are great.)
- Financial aid department is atrocious. (Nothing in CE.)
- Adjunct faculty. I was unfortunate to have a couple of professors who didn't have much teaching experience. I felt that the instruction I received in those classes was inferior to instruction other students received in previous semesters.
- The required classes which were outside my area of study – junior and senior years (Nate's class was a problem). Some of the professors are so bad nothing is received through the class. Too much emphasis placed on what you do in the class, not enough on what you actually learn.
- Every single time I have had to deal with anyone from the Registrar's Office or the bookstore they have been extremely unhelpful, incompetent, and unfriendly. They are the 2 most unorganized offices I have ever seen. The bookstore has never had all of the books for my classes. Also, there are many parking issues, and an over-priced cafeteria. (Registrar office is a problem).

- Class scheduling/offerings. (The classes are not offered frequently).
- Lack of reference material on campus. (Transportation books and ASCE publications). Under qualified professors.
- (Good faculty members. Tocco can be improved).

3) Do you feel your education has prepared you for entrance into the civil engineering profession?

Nature of Question: Overall Satisfaction

- Yes, but only entry level.
- Yes, I see it happening.
- The education is a good base to move to next step in our professional life.
- No, but lucky that thru school and work my education is well rounded. (In general education alone will not prepare students.)
- Somewhat, the basics are strong. Need more software based classes. Lack of classes focused on site design. (Underground, site development.)
- Yes I do, to an extent. I feel that the technology that is being used in firms today is far more advanced than Lawrence Tech. i.e. many jobs that are available require AutoCAD experience. (AutoCAD)
- Not really…(learn most of she wants from work) I feel that the classes never really touched the area of civil engineering I am going to be working in. a few classes I learned a lot in, but they were few and far between.
- It has done a good job in teaching us the basics and the original ways of calculating things, but nothing is as good as experience.
- Yes, the curriculum is broadly based. (Tocco is bad).
- Yes.
- Yes I do.

4) What would you say to a student who is considering entering the Civil Engineering Department at LTU?

Nature of Question: Overall Satisfaction

- Come on over!
- " Find someone to sponsor your tuition fees"
- There must be schools that have cheaper tuition fees.
- A top notch CE department. Advancing in technology every semester. Small classes allow more personal teaching.
- Very good program for structural, be prepared for a lot of work. (There is a lot of things happening.)
- I would tell them that in order to be a successful student with a successful future. Take pride in being an LTU student, stay current with class work and when your education is complete you will have the resources to be competitive.
- Good luck. Just get your degree and get out because all your learning is going to be accomplished in your job field.
- It is going to be a long and difficult journey, if you aren' t completely dedicated to giving up your entire personal life for school, you won' t make it. (After 2 years in college she made up her mid to be a CE).
- Take as many classes as you can with adjunct professors. (Andrew was not good. Karam is good. Soong is good.)
- I would ask what their expectations are and what aspect of civil they plan to specialize in. if they answer structure, or hydraulics I would tell them to attend LTU.
- Excellent program.

5) Do you have any suggestions for the improvement of our program?
Nature of Question: Overall Satisfaction

- More labs, practical experience. More construction oriented teaching.
- A computer lab with engineering programs and computers that work properly. Do away with the Circuits course and replace it with another CE course.
- To have more elective courses (CE) and less mandatory courses.
- Need more classes using software and have updated AutoCAD in the lab.
- Need some classes that concentrate on software that is utilized in the real world field. (AutoCAD, WaterCAD)
- I would like to suggest the addition of land development courses along with instruction of AutoCAD and other industry standard programs. I would also suggest that more emphasis be taken in the area of mechanics of materials related to civil engineering. (Land development and AutoCAD.)
- Better structural professors (new faculty members) & adjuncts. Fewer adjuncts, more full time professors. Keep better tabs on what is being taught and demands of each class; some classes' expectations are too high and some are too low.
- Try to give practical assignments in class and projects that are appropriate for how many credits are given to the class.
- More electives should be offered. A lot of times, students are forced into taking electives.
- Rearrange the flowchart and create a separate flow chart for a 6 year program for working students.
- (Enjoy steel design. Make senior design an elective).

6) What are some of the positive features of the civil engineering faculty at LTU?
Nature of Question: Overall Satisfaction

- Availability - open door policies
- Knowledgeable faculty.
- They are always willing to help, even if they are not teaching the course the help' s needed for.
- Friendly, caring, and they all know their subject better than anyone I' ve met.
- Very knowledgeable of theory, some of practice. (Adjunct faculty may be strong in theory.)
- Full time and most adjunct faculty are very knowledgeable in their areas of interest. I feel that with faculty working in the field current practices and theory is taught to give a broader knowledge in the areas studied.
- Dr. Carpenter is awesome! The full time professors seem to really want to teach the students.
- They (the faculty) are willing to spend extra time to help you understand the material. They are always promoting new technology and software. (Yuen is a good professor technically).
- The adjunct faculty provide real-world experience.
- Willingness to help the students. (Rizk is good. Yuen is the best. Hanson' s policy needs to be changed.)
- Availability.

7) Are there any negative comments you have about the civil engineering faculty at LTU?
Nature of Question: Overall Satisfaction

- None. (Adjunct faculty read from the book.)
- No.
- No, I always found them reasonable to deal with.
- Yes, after a class enjoys a professor they begin to teach less classes. (Dr. Hanson needs to teach Geotech. Dr. Carpenter needs to teach more classes.)
- Some professors grade homework too hard. If homework is graded, it should be an opportunity for a student to boost his/her grade.
- Adjunct faculty I feel are knowledgeable in their field but some lack of teaching ability.
- Not around enough to ask questions (need to have more time). Some of the adjunct professors seem to only care about looking smart and not teaching the students, such as Rener & Tocco. (Bad comments are made by Rener. Rener has a bad way of talking. Rener is not a good professor. Rener' s way is the only way. Tocco talks too much.)
- They push too hard sometimes and like the theory better than the realistic. Some let their authority go to their head. (Need more help. Nate is a bad professor technically).
- (Young, full time faculty do not have field experience).
- Many are not qualified to teach. Others are too superficial, and some do not promote students of LTU. After attending their classes we come out with a negative view. (Tocco gives negative feeling about LTU.)
- None.

8) Do you have any comments specifically regarding the adjunct faculty of our department?
Nature of Question: Overall Satisfaction

- Boring. Most just read out of the book. Not all of them, Dr. Soong is excellent.
- Adjunct faculty working in the field are beneficial.
- They are sometimes hard to get in touch with. The experience they bring sheds a different light on the subject matter being learned.
- Be more prepared and qualified to teach students who pay good money.
- I personally have been introduced to many 1st semester professors. Most have really compromised what the class could offer. They may have a lot of knowledge, but they don' t know how to teach it. However, there are a few adjunct that are very good.
- Adjuncts are professional and knowledgeable unfortunately some lack the gift of expressing their knowledge to less educated individuals in their field. Perhaps a guest teaching evaluation could be performed to analyze the adjuncts ability to instruct.
- Many have the wrong goals in the class. Very much disliked certain ones such as Rener & Tocco. They seemed more concerned with their things rather than teaching necessary things.
- I have enjoyed both of the transportation adjunct faculty: Madugula & Nannapaneni.
- They provide real-world experience, which is the most important aspect of education.
- Faculty such as Karam and Soong are excellent. Their teaching methods should be seen as an example for all others.
- None.

9) What are your plans after graduation (i.e. work, graduate school, etc)?
Nature of the Question: Outcome i and Outcome m

- Work in construction, grad school soon. (One semester from now.)
- Work in the field. Graduate school to follow.
- I will be running my " Heavy" Construction Co. as an Owner/Project Manager.
- I plan on working at the company I currently work for.
- Work in Traverse City for a civil firm.
- I plan to definitely obtain a professional license and continue my families business into a land development company. I am also considering graduate school.
- Work at Powell & Associates, Engineers, Inc. as an engineer, get my P.E.
- I plan to work for a consulting firm in the traffic department and get my P.E.
- Work, graduate school.
- Graduate school. If I continue with structural I will continue at LTU. (Madugula cares about students. Took 2 graduate courses.)
- Work.

10) Where do you see yourself professionally and/or personally in 5 years?
Nature of the Question: Outcome i and Outcome m

- Carpenter/Project Management. (Carpenter for a couple of years – for pension reason)
- *No Comment.*
- Still managing my company.
- Hopefully a PGA golfer, but most likely a design engineer or site super. (Will go to graduate school at LTU.)
- P.E. for civil firm, possible pursuing masters.
- Professionally – I plan to have a P.E. license and providing clients and the community with a professional service that is self gratifying and showing pride in my field.
- Working full time, part owner in civil engineering firm working my way up on the ladder. Married and in my career.
- I will have my P.E. and work in traffic for a worldwide consultant and live in a warmer state! Travel is important to me.
- A project manager of a construction firm.
- Perhaps I would still be working as a field engineer. I enjoy working outdoors more than indoors, but I hope to have some exposure to design. I do not see myself being a design engineer for at least another 7 years. By that time I hope to be working as a structural engineer and have obtained my P.E. and S.E.
- Project Engineer.

11) What comes to your mind when you hear the word " professionalism" and what does it mean to you to become a member of the civil engineering profession?
Nature of the Quesiton: Outcome f

- Respect, knowledge, integrity.
- Pride.
- Responsible, accountable and ethical.
- Integrity, respect, quality work.
- Professionalism to me: knowledgeable, presentable, ethics.
- It is a great honor to be part of a career that prides itself in professionalism. Professionally to me means respect, honor and duty. Respect the people you work with, honor the society that supports my profession and complete a job at task to my best ability.
- Doing good work that benefits not only the client but also people around. Being ethical.

- It means doing your job to the best of your ability and always striving to learn more and do a better job. I believe we must conduct ourselves professionally in order to impress clients so that they believe that we can do good work.
- That you are responsible in design.
- A mix between business and science. I think of efficiency and honesty.
- Work hard, ethically.

12) Do you feel you have the education necessary to understand the impact of your engineering actions on society in a global and sustainable context?

Nature of the Question: Outcome h

- Somewhat, only a small scope. (We need to spend more time in the classroom.)
- Yes.
- I think the basis is there, but the impact of engineering actions requires constant thought and monitoring. A lack in concentration can have major ramifications.
- I was never really taught any of this. It goes to show with my CE project couldn' t cover very much.
- Yes, although most of this is from working education, every student should have an opportunity to work in the civil field before he/she graduates.
- Yes.
- Somewhat. I feel I will be a beneficial part of my company because I have been a part of it for so long already and now I will just be working more, so more dependable.
- Yes.
- Yes.
- Yes, we have learned how each action done by engineers effects the civil infrastructure of our environment. However, it seems civil engineering is driven more by liability and regulation rather than efficiency.
- (Yes.)

13) Please discuss a contemporary civil engineering issue or a recent development in civil engineering.

Nature of the Question: Outcome j and Outcome h

- *No Comment.*
- A recent development in the CE field that interests me is an emergency escape system developed for high-risers. I recently read an article in the " Civil Engineering" Magazine (ASCE) that discussed an escape mechanism for tall buildings. The escape mechanism utilized a fan to decrease the speed a person descended from the building. The " fan" mechanisms are bolted to the building and equipped with several cable for several occupants. Evacuees of a high-rise can be clear of the building in 30 minutes. This is an interesting development, especially in the wake of war and terrorists. (October 2002, Volume 72, Number 10, Page 36)
- I' m not too sure how recent this development is, but in the last couple of years I' ve seen road resurfacing done using the existing road materials. It is a form of recycling, in that the existing pavement is milled off, collected in a hopper-type apparatus, mixed with new A.C. (Asphaltic Cement) and re-laid through a asphalt spreader. This procedure not only reuses material but is completed almost immediately.
- *No Comment.*
- Sustainable development.
- Many municipalities in Southeastern Michigan are considering the use of High Density Polyethylene (HDPE) pipe for sanitary sewer and public water supply systems. This piping is leading the industry in many positive aspects. No mechanical connections are

needed; the pipe is heat fused together, friction factors are less than traditional PVC and ductile iron. This allows for less buildup inside the pipe. Also this HDPE material is much more flexible than PVC and ductile iron. HDPE also can be installed with trenchless technology which allows for greater savings in restoration costs. With the many positive aspects of HDPE the use of this pipe allows for more engineering flexibility in regards to design as well as a superior product for the client. As an engineer HDPE can be installed in areas that may have been impossible by more traditional means of construction. By being able to design a sanitary sewer system that would have been to difficult or costly in earlier years, helps to protect the environment.

- In Boston the existing expressway going through the heart of downtown Boston (I-90). A six lane highway taking up space through the center of the city. To remedy this existing situation a project placing the expressway underground was proposed and accepted. This project is called " The Big Dig" and it is one engineering marvel after another. Furthermore, it is the largest scale engineering project which has ever been approved in the United States. This engineering project consists of many facets of civil engineering, some being structural, environmental, geotechnical, hydrology, etc. The underground highway is to be topped by park areas. This project has been being construction for seven years now and still there is a great deal left to go. Because this project is digging out historic soils the construction workers are finding many valuables like pottery and silver. The project is being funded through many parties including: state, federal, local government, and other purchases, etc. The project is going to benefit the city of Boston greatly.
- As I have been involved with the Farmington Hills traffic engineering department for over four years, I have been privileged to learn much about the traffic engineering profession. One of the recent concerns that require an engineering solution is the problem of red-light running. Michigan is one of the worst red-light running states statistically. Engineering countermeasures will probably only deter unintentional runners, while enforcement countermeasures work best for intentional red-light runners. Some of the engineering countermeasures include improving signal visibility, increasing the likelihood of stopping and eliminating the need to stop. 40% of the red-light runners claim that they did not see the signal. To try to counteract this there should be stricter adherence to the Manual of Uniform Traffic Control Devices. The placement, number and size of signals should be evaluated. Also, improvements to intersection pavement conditions, signal ahead signs, flashers and rumble strips should be considered. Signal optimization, modifications to signal cycle length, yellow, and all red times can also help. A few other countermeasures include taking out unwarranted signals and installing roundabout intersections (my new specialty!). The solution to this problem should involve a combination of education, enforcement and engineering countermeasures. This is just one of the many ongoing problems that traffic engineering should try to address.
- A development within civil engineering in combined sewer overflow. This is a development in which cities are being pushed to use separated systems. Many cities do not have the funding, this is why this is an issue.
- LRFD being used in replacement of ASD. It was interesting hearing about the process of change taking place and also slowly seeing it taking place in the professional world.
- The CSO Controversy and how municipalities have chosen to deal with this problem. Most municipalities have old and under capacity CSO' s. Currently federal does not allow for new CSO' s to be constructed unless a municipality already has one. Most municipalities choose to deal with this problem by constructing larger and deeper CSO' s to handle the increasing flow.

Advisory Board Interview – Spring 2003

LAWRENCE TECHNOLOGICAL UNIVERSITY
DEPARTMENT OF CIVIL ENGINEERING
Senior Interview by Advisory Board Summary
Spring 2003

April 2003, the five members of the Advisory Board interviewed 10 students who represented at least one student from each Senior Design project team (both Senior Design I and Senior Design II). George Fadool led the interviews and no full-time or adjunct faculty were present. This is a group interview with the Advisory Board serving as a panel. The 10 questions on the form are questions posed to the advisory board about our students. The advisory board determines the answers to the questions based on the interview. The comments below are composites of interviewers comments. Overall the feedback from the Advisory Board is very positive. The strongest statements were on the ability of our students to communicate, their well rounded nature, their preparedness for entering the profession, and that they would definitely hire our students if they had an opening at their firms. The only apparent weaknesses revolve around global and societal context of our engineering solutions and the lack of reference materials available from the library.

Faculty Input:
Nabil Grace: It is good and it was expected that our advisory board will be pleased with the ability of our students to communicate and their preparedness for entering the profession. The department needs to meet with the officials from LTU library to inform them about our needs for additional reference materials. Also, we need to discuss, during our weekly meetings, how we can address the pointed student weakness that revolves around global and societal context of our engineering.

Corrective Actions:
Increase the number of reference materials in the library by encouraging faculty to put materials on reserve. Also try to obtain additional reference texts to be stored in either the CE Computer Lab or the Library.

Senior Interview by Advisory Board Actual Comments
May 1, 2003

Interviewers:

- Heidi Flateau
- Jim Cole
- George Fadool
- Bill Moylan
- Dave Ruby

1. Can the students demonstrate that they are aware of contemporary issues in civil engineering (for example, can they discuss a contemporary issue of their choosing)?

Overall, this was a strong YES from the interviewers. Students thought contemporary issues were emphasized across the program and were able to discuss with authority on current topics.

2. Can the students describe the concept of sustainable development and the impact of their engineering solutions in a global and societal context?

The students appear to understand sustainable development but were weaker in global and societal impacts. The general consensus was they have a general sense of all three (sustainable, global, and societal) but only sustainable was well understood and expressed by the student body.

3. Can the students understand the difference between designing a new project component and analyzing an existing system? Have they had the opportunity to perform both?

Four of the five interviewers indicated that students understood the difference and had an opportunity to perform both. Specifically in municipal design and re-development/rehabilitation projects. Adjunct professor(s) who were not named particularly emphasized this. One interviewer indicated that they did not have the opportunity to analysis an existing system.

4. Can the students demonstrate that they have an understanding of and the ability to use the techniques, skills, and modern engineering tools necessary for engineering practice?

Overall, this was positive. The students appear to have a good understanding of and the ability to use modern tools. This was evident both in interview and during project presentations. A majority of the students are currently employed and indicated they used course skills in their jobs to provide a better overall understanding of the material.

5. Can the students demonstrate a proper appreciation of the benefits of passing the FE exam and becoming a licensed professional?

A majority of the students have a goal to obtain P.E. exam and all but one had taken the FE exam already. Also, the student felt the curriculum and the faculty stressed this aspect of professional development and thought their classes had prepared them for the FE exam.

6. Please comment on the students' communication skills based on the interview session and NOT the oral presentation.

Overall, extremely positive reaction from the advisory board. Students spoke with confidence; exhibited poise; listened to the question and then provided a specific answer. Advisory board felt there was a camaraderie, honesty, and openness shared by the students during the session. They were honest and sincere even when opinions differed.

7. Based on this interview and the Senior Design Project Presentations, do the students appear to have a proper appreciation and understanding of all aspects of professionalism including ethical responsibility, participation in professional organizations, life-long learning, and service to the community and the profession? (It may require additional direct or indirect questions to address these topics).

Overall, yes. Every student displayed an appreciation of one or more topic areas mentioned. They were very well rounded as a group. Life-long learning was very evident and participation in professional organizations (however only ASCE and AGC) was made evident. One individual only mentioned community service but it is hard to cover everything in a short interview.

8. Based on this interview and the Senior Design Project Presentations, in your opinion, have the students received a broad, high quality education that reflects the motto " Theory and Practice" ?

Overwhelmingly yes. These students are well prepared for entering industry and have a good balance of theory and practice. They do believe their working experience complements their school experience and gives them the necessary balance between theory and practice. They also indicated a belief that full-time faculty focus more on theory and adjuncts on practice.

9. If you had an appropriate entry-level position available, overall, would these students qualify in your opinion?

Definitely yes. The advisory board was overall impressed with the group and would consider any participant for a job.

10. Pursue any additional avenues you deem relevant and make as many comments as you wish.

- Concern of cost of tuition. They believe they received a good education but are stressed by school and work demands and there was a concern that tuition would price LTU out of range of future students. Feel tuition was worth the education they were receiving but a threshold does exist.
- Students mentioned the library and other resource materials were either out of date or lacking completely. ASTM standards, reference materials, Code 701, etc.
- Students regarded their LTU educational experience as positive and would recommend LTU to future students.
- Of the 10 interviewed, 2 will attend grad school at LTU, one would not consider LTU, and the other 7 would consider LTU for grad school.
- Students had an appreciation for the benefits of attending LTU including professor accessibility, quality of adjuncts, small classes, good value for cost (but still too expensive), flexibility, family atmosphere, etc.

- According to students, the adjunct faculty have all reached a stage where all instructors are highly regarded by the students. This wasn' t always true in past so it indicates a willingness of the CE Department to listen to student concerns and act accordingly to deal with adjunct faculty issues.
- Structural Design Testing Lab was criticized. It was 4 credits worth of work for 1 credit. Instructor was inaccessible outside of class. Overall, not a very worthwhile class.
- Outside of Michigan, LTU is not known as a good engineering school, but while students thought this was a weakness, it wasn' t a deterrent to attending LTU or recommending LTU.
- Most students indicated they would be willing to support the university after they graduated.
- As a group, the presentation skills and techniques were better than in past years.

Senior Project Evaluation – Spring 2003

Each professional member and faculty member present were asked to rate each senior design group on a scale of 1 to 5 on 10 individual questions. The average rating for each group along with specific comments can be found on the subsequent pages. In the spring semester there were 4 senior design groups ranging in size from 2 to 5 students. In an effort to evaluate the program outcomes in a systematic manner, a weighted mean was calculated for each question. This was accomplished by multiplying the average rating for the question by the number of students in each group then dividing by the total number of students enrolled in Senior Design 2. By doing so, if a senior design group of 5 students did very well on a specific outcome, this carried more weight than if a group of 2 students had a poor evaluation on an given outcome. The weighted responses, along with actual comments, were used to initiate discussion among the faculty when assessing if the program outcomes are being met. The weighted responses are in the table below.

Senior Project Evaluations – Spring 2003										
Question #	1	2	3	4	5	6	7	8	9	10
Related Outcome	e	a	c	k	j	h	d	g	g	g
Faculty Response	4.0	3.5	3.8	3.8	3.5	2.8	3.9	4.3	3.9	4.0
Advisory Board Response	3.9	3.6	3.9	3.6	3.5	2.8	4.0	4.3	3.9	3.8

Senior Project Evaluation – Fall 2002

Each professional member and faculty member present were asked to rate each senior design group on a scale of 1 to 5 on 10 individual questions. The average rating for each group along with specific comments can be found on the subsequent pages. In the fall semester there was only one senior design group so a weighted average was not necessary. Additionally, unlike in the spring semester, the Advisory Board is not encouraged to attend therefore the professional attendance tends to be less. Therefore, a separate rating is not generated for both faculty and professional attendees. In the fall semester, any professional attendees who rate the senior design groups are included in the overall score.

LAWRENCE TECHNOLOGICAL UNIVERSITY
DEPARTMENT OF CIVIL ENGINEERING
Course Objectives Summary for Spring 2003

In the spring of 2002, course objectives were written for almost all undergraduate CE courses as part of the Course Assessment Package initiative. These objectives have been modified slightly in each subsequent semester. This represents an overview of student responses to the end of term survey of course objectives.

Student Response Rate:
The goal is for 100% student participation in course objectives surveys with the realization that in a given course one or two students may not complete the survey. Overall, we did not achieve the student response rate goal. Out of 14 CE courses, only 8 met the response rate goal with 3 courses (Hydromechanics, CE Materials, and Theory of Structures) having low response rates and 3 courses (Ethics, CE Management Practices, and Structural Design & Testing Lab) not having course objectives distributed for the courses. Low response rate was in spite of requests from Ms. Huff and Dr. Carpenter to faculty and directly to the student body (via Blackboard email) to complete online course objective survey.

Course Objectives:
The goal is for at least 85% of students in a class to self-report being either capable or very capable in performing every course objective. Overall, this goal was met in 8 of the 11 CE courses in which course objective surveys were completed with only occasional instances in which less than 85% of students reported being very capable/capable of completing the learning objective. In 3 courses (Theory of Structure, Environmental Engr Design, and Hydraulic Engineering), 5 or more course objectives did not meet the desired 85% goal. However, low enrolment in Environmental Engineering Design meant if only 1 student reported not being capable, the goal was not obtained. The only course with multiple objectives far below the goal of 85% was Theory of Structures.

Faculty Input:
Nabil Grace: The part-time instructors who taught Theory of Structures and Structural Testing Lab will not teach again until serious revisions and discussion about their teaching approach are implemented to match the course objectives developed earlier by the course coordinator. The course objectives of the Structural Lab are available and will be posted on the Bb next semester. Also, the department needs to develop methods by which students are encouraged and obligated to complete online course objective survey. The department will encourage each faculty to assign this task as an assignment for his/her classes.

Corrective Actions:
Individual instructors and course coordinators are aware of course objective survey results and can address specific cases in which occasional objectives were not met. Instructors will be asked to address these issues in future course offerings. The instructor for Theory in Structures will be required to meet with Dr. Grace to discuss course objectives being teaching the course again.

Starting in Fall Semester, 2003 we need 100% participation from faculty and adjunct faculty regarding distributing objectives and subsequently encouraging students to fill out online survey. Course coordinators will verify validity of course objectives for the upcoming semester and Ms Huff will post the course objectives in the Course Information Folder in Blackboard for each course to insure distribution. Completing the survey can be made a homework assignment if instructors feel additional incentive is made for the students. Increasing familiarity with Blackboard for both students and faculty should help in this manner with several courses still not utilizing Blackboard and some students not checking their default email account in Blackboard.

LAWRENCE TECHNOLOGICAL UNIVERSITY
DEPARTMENT OF CIVIL ENGINEERING
Course Objectives Summary for Fall 2002

In the spring of 2002, course objectives were written for almost all undergraduate CE courses as part of the Course Assessment Package initiative. These objectives have been modified slightly in each subsequent semester. This represents an overview of student responses to the end of term online survey of course objectives. This represents the first term in which all CE courses were suppose to distribute objectives and conduct year end surveys.

Student Response Rate:
The goal is for 100% student participation in course objectives surveys with the realization that in a given course one or two students may not complete the survey. Overall, we did not achieve the student response rate goal. Out of 11 CE courses in which surveys were completed, only 3 courses met the response rate goal (Environmental Engineering, Transportation, and Concrete Design). Low response rate was probably associated with infrequent use of Blackboard by instructors, overall student unfamiliarity with course objectives, and inconsistent Blackboard use by students.

Course Objectives:
The goal is for at least 85% of students in a class to self-report being either capable or very capable in performing every course objective. Due to low response rates, it is very hard to determine if this goal is being met, but based on responses, this goal was met in 8 of the 11 CE courses in which course objective surveys were completed. In these 8 courses, there were only occasional instances in which less than 85% of students reported being very capable/capable of completing the learning objective. A 9th course, Hydraulic Engineering was close to obtaining 85% or higher in all objectives but fell below because 1 out of 5 students reported being incapable. In Foundation Engineering, there were 4 objectives not obtained but only 4 out of 12 students completed the survey. Overall, the only course which course objectives were not met was Theory of Structures.

Faculty Input:
Faculty received copies of the results and a general discussion was held. There were no specific comments to be documented here.

Corrective Actions:
Individual instructors and course coordinators are aware of course objective survey results and can address specific cases in which occasional objectives were not met. Instructors will be asked to address these issues in future course offerings. The instructor for Theory in Structures will be required to meet with Dr. Grace to discuss course objectives being teaching the course again.

Focus Group – Spring 2003
LAWRENCE TECHNOLOGICAL UNIVERSITY
DEPARTMENT OF CIVIL ENGINEERING
Focus Group Summary for Spring 2003

Summary:
The focus group meeting was held on February 19th as part of an ASCE student chapter meeting. There were 18 students in attendance (15 males and 3 females) with a complete demographic sheet attached. Mary Thomas of the Provost' s Office conducted the confidential focus group using a form provided by Don Carpenter of the CE Department (attached). Mrs Thomas and Dr. Carpenter met prior to the focus group meeting and discussed the strategy and desired outcome of the focus group. Mrs Thomas provided a report summarizing the focus group responses which is attached.

Faculty Input:
Nabil Grace: The focus group result is very good assessment tool and certainly will be useful to address any problems. We need to make sure that more freshmen are included in future focus groups. The Department needs to submit a request to the Dean' s Office to consider increasing the size of the Geotech lab and improve its testing equipment. The new faculty member that will be hired in 2003-04 will be responsible for the Surveying class should closely examine and improve the surveying lab/equipment. The use of Bb needs to be stressed with all faculty members. This should eliminate their frustration.

James Hanson: The students get to design their own labs in CE Materials. They apparently didn' t recall that experience during the focus group.

Corrective Actions:
A large concern that arose from this focus group was the lack of posted office hours and quality advising. A new advising procedure will be established during the summer of 2003 to make advising more clear. Students will be informed of their assigned advisor and be encouraged to meet with them at least once a semester. Their plan of study will be reviewed during that meeting as part of the improved advising procedure. Additionally, all faculty will post office hours and will included additional hours during " Advising Week."

Course scheduling conflicts will be more rigorolously reviewed in the future, apparently their have been several course conflicts that were not realized in the past two years. A review for the Fall 2003 semester has already been conducted and several courses were moved to eliminate a conflict and make course offerings more convenient for students.

Students will get additional opportunities to design laboratory experiments in the Hydraulics Lab and Structural Lab this upcoming year. They will continue to design their own experiments in CE Materials.

STUDENT FOCUS GROUP RESPONSES - FEB 19th 2003

Describe a typical laboratory experience in Civil Engineering.

Students responded that they are given a set of instructions and they complete those tasks. They conduct the experiments specifically as supplied to them. They compared them to the experiments that you receive in a physics lab, except that the experiments are much longer and more complicated than those in their science labs but that they follow a supplied format given by the instructor. They work in teams of 3-5, depending on the class, and they don't work alone in the labs. None of them described an experience where the lab is done in "demonstration" form where the instructor completes the experiment in the front of the class.

When asked if they analyze or interpret data, students responded that they don't feel they have the time needed to analyze the data. They are in a "time crunch" to get the reports done on time, which leaves little time to interpret what they have seen. There was consensus across the group with these statements.

Do you ever get to design your own experiments?

No. Only in hydraulics lab did they get a chance to design their own experiment. The other classes had the labs laid out for them. In hydraulics they were able to come up with their own ideas and develop a lab that was unique to them. They said it happened near the end of the semester after they had an opportunity to learn a great deal of the material first and had time to be comfortable with the typical lab experiences in that course. The students that completed this course really seemed to enjoy the experience and would like to see it in other classes.

Can you explain why there's a discrepancy in the CE students' comments on lab facilities in their areas? (Why are they rated low in Noel Levitz, but high in exit interviews?)

Students said there had been improvement in the hydraulic lab over the summer (after the time the Noel Levitz Survey was given). They seemed to like the changes made to the hydraulic lab very much. The "Fab Lab" was mentioned in terms of how unique it was and yet it isn't used to it's potential. Only certain projects get scheduled in that lab; most students don't get many chances to use try it. Students said the Geotech Lab was very small and it was hard to work in there.

During this time, the students talked a great deal about lab equipment. The surveying course specifically came up as an area that could use improvement. Even though surveying isn't a "lab", they seemed to agree that the use of more modern equipment would help them see the real-world side of that course. It was suggested that the equipment isn't even needed the whole term and could possibly be rented or leased for a specific set of days or weeks to help them get an opportunity to use more up-to-date equipment.

How often are you asked to design a system or structure compared to critiquing someone else's design?

This was an interesting discussion and gave me strong discrepancies from the group. Overall, when discussing whether or not they designed from the " ground up" , they were split in their reaction to this question. Some students started by saying they are always given problems to solve that have them work through structural or similar mathematical formulas to obtain a result. This quickly got reaction from others in the group that this was not " designing" , this was simply solving a math problem. Obviously, students are not sure if they are designing or not. (This reaction could be that the initial responses were from lower division students or it could be that they simply feel that solving homework problems is " design" to them.) There were some students that said they did not have their Senior Design courses yet which made me believe that they felt the design opportunities *only* occur in those courses.

They could not give me any examples of designs that they did from the ground up, but they were sure they did it. When asked if they did, they said " yes" but couldn' t name examples for me other than Senior Design courses where the entire intent of the course is to design from the ground up. It was mentioned that they feel design projects are rushed and given to them at the very end of the course and they wish it would begin earlier in the course and have the design expand as the course goes on.

When asked if they were given opportunities to critique the design of other systems, some of them said " no" , while a few mentioned they were given a culvert problem and had to critique the design of that culvert. They couldn' t give another example other than the culvert example.

What does Professionalism mean to you?

Various responses such as: It means being ethical, abiding by laws, working in the real world, bringing professional advice and service to a client. Ethical was the first answer out of the group, which may have affected the responses of the other students if they weren' t thinking in that direction.

There was *no* mention of professional societies, licensure, or advanced education, even after giving them more time to think about their answers and after prodding them to think of other ways of being a professional.

Some extra questions/topics that were covered:

Blackboard/Banner Comments

Students are frustrated with BlackBoard even though they feel it has great potential. They are confused with the variation that faculty use BlackBoard. Some faculty only put their syllabus on it, while others use it more extensively. There doesn' t seem to be a pattern with the way it' s being used and that' s what causes frustration to students. They also found that the system was down quite often. They liked it when their professors put supplemental information on it, rather than simply posting copies of their class notes. They don' t understand how it saves resources when they have to use a laser printer to print the handouts (they feel that handouts should still be provided to the students, with BlackBoard as a source to find those handouts if they lose their copy or if it' s supplemental to the notes in class.)

When asked for some positive feedback, they said the wonderful parts of Blackboard are " checking my grades" , and " getting notes or assignments if you' re out ill" .

When asked about Banner Registration, the response was " awesome" , " fantastic" . Some students said they couldn' t believe the improvement in registration over the last year.

In general, students seemed very happy with Banner Registration, but they still see need for improvement in BlackBoard.

Advising

When I asked about advising, there was strong feedback. Many students said they do not know who their assigned advisor is, however, they could always find someone to approve their registration. One person said their advisor was changed several times since they began at LTU (could be a change in personnel). Students don' t seem to have a connection to any one particular advisor and they seem to want that. They' d like to develop a relationship with one person so they don' t have to explain their situation over again to the next faculty member.

Students are suggesting a set-aside period of time just before registration where their advisors would post office hours on their doors, so that students could be sure they have an allotted time to see their advisors (maybe even a sign-up sheet). They suggest that the week be set aside for advising, with limited faculty meetings so that faculty would be available for assisting students.

In general, even if it' s not an advising week, the students would like to see office hours posted on the door.

Scheduling Conflicts

This issue was brought up because of the Noel-Levitz survey results and the close relation to " advising" . Students immediately reacted to this, saying it' s very hard to get the classes they want. They mentioned the flowchart and how there are conflicts even if they follow the flowchart. The C.E. department should look at the flowchart each semester to make sure that the suggested courses on the flowchart could be taken without conflicts. This would include looking at the schedules of other departments on campus including Arts & Sciences and Mechanical Engineering.

It was also mentioned that students find it hard to take all their classes during the day hours; they usually have to take a night class even if they don' t want to. Several students say they have to drive back and forth for day and night classes or stay all day waiting for their night classes to begin. Many of them said they' ve rarely had a semester without night classes.

Performance Appraisals - 2002/2003 Academic Year

There were several performance appraisals conducted during the 2002/2003 academic year. The first was conducted in CE Perspectives and the second during Transportation Engineering. These were done to evaluate design and sustainability.

Electrical and Computer Engineering Department
Objectives and Outcomes
Assessment Summary 2002-2003

1. Program Educational Objectives, Outcomes and Accreditation Status

The Department of Electrical and Computer Engineering developed and revised the Educational Objectives and the Educational Outcomes for the Bachelor Degree of Electrical Engineering and Computer Engineering. The Bachelor of Science in Electrical Engineering is accredited by ABET. The Bachelor of Computer Engineering is seeking accreditation after the first students graduate as mandated by ABET.

Electrical and Computer Engineering Educational Objectives

To graduate electrical engineering students who:

- Possess the problem-solving and critical judgment skills required of competent citizens in an increasingly technological society.
- Are able to undertake entry-level engineering projects in local industry.
- Are capable of growing in competence and responsibility.
- Are prepared to undertake graduate study.

Electrical Engineering Educational Outcomes

All Electrical Engineering graduates MUST have:

a) an ability to apply knowledge of mathematics, science, and engineering;
b) an ability to design and conduct experiments, as well as analyzes and interprets data;
c) an initial ability to design an electrical system, component or process to meet predetermined design requirements;
d) an ability to function as a member of a multi-disciplinary team;
e) an ability to identify, formulate, and solve electrical engineering problems,
f) an understanding of professional and ethical responsibilities of electrical engineers;
g) an ability to produce effective oral, graphical and written communication;
h) a broad education necessary to understand the impact of engineering solutions in a global and societal context;
i) a recognition of the need for, and the ability to engage in life-long learning;
j) a knowledge of contemporary, technical issues;
k) an ability to use modern techniques, skills and tools of electrical engineering;
l) an ability to design, fabricate, construct, and test circuit hardware;
m) and an ability to design, test, and debug systems consisting of both software and hardware.

Computer Engineering Educational Outcomes

All Computer Engineering graduates MUST have:

a) an ability to apply knowledge of mathematics, science, and engineering;
b) an ability to design and conduct experiments, as well as analyzes and interprets data;
c) an initial ability to design a computer system, component or process to meet predetermined design requirements;
d) an ability to function as a member of a multi-disciplinary team;
e) an ability to identify, formulate, and solve computer engineering problems,
f) an understanding of professional and ethical responsibilities of computer engineers;
g) an ability to produce effective oral, graphical and written communication;
h) a broad education necessary to understand the impact of engineering solutions in a global and societal context;
i) a recognition of the need for, and the ability to engage in life-long learning;
j) a knowledge of contemporary, technical issues;
k) an ability to use modern techniques, skills and tools of computer engineering;
l) an ability to design, fabricate, construct, and test circuit hardware;
m) an ability to design, test, and debug systems consisting of both software and hardware;
n) and an ability to design and develop programs and hardware for microcontrollers
o) and real time computer systems and the ability to do computer program develop

Program Objectives for the Master of Science in Electrical and Computer Engineering (MSECE) Degree

The MSECE program is designed to provide students with advanced professional skills, to improve students' ability to apply scientific principles in solving engineering problems, enhance students' ability to communicate, and to offer students the background required for the pursuit of either a senior engineering position or entrance to a Ph.D. program.

2. Assessment Activities and Results

The Department of Electrical and Computer Engineering is preparing for a major accreditation visit in the Fall 2004 from ABET [Accrediting Board of Engineering and Technology]. The Computer Engineering degree is relatively new [degrees granted since 2000], and being accredited by ABET for the first time. Significant time and thought has been given to this event. In fact, LTU-ECE stresses the engineering process for the department, and concentrates on the continual quality improvement of the department's process [CQI]. The Department of Electrical and Computer Engineering [LTU-ECE] assesses the following stakeholders regarding the status of the department on a regular basis: students, faculty, alumni, industrial advisory board, and employers. Other stakeholders exist, but are much harder to assess, and do not have as significant a stakehold in LTU-ECE. In addition, the order of the stakeholders is the order of the significance of that stakeholder. Hence, students are assessed more often than employers,

since they are the major stakeholders of LTU-ECE.
The Department of Electrical and Computer Engineering developed the following mission statement [also known as the "objectives of LTU-ECE"] in April, 2000, which is posted on the websites of the faculty, in the catalog and in the department: "To graduate students in ECE that:

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

This mission statement was reviewed by a major stakeholder [the industrial advisory board] on two documented occasions: May 2003 and September 2002. The mission statement was reviewed, but not altered. The biggest area of concern continues to be the word 'citizen'. LTU-ECE feels that citizen most correctly reflects our mission, and not technologist, number cruncher, or even engineer. This philosophy is also shared by our professional society, IEEE, and the accrediting institution, ABET.
The outcomes are the items that guarantee that the LTU-ECE objectives are achieved, because they can be assessed. The outcomes are regularly revisited at stakeholder review meetings, and have changed twice significantly since 2000. Initially, LTU-ECE had twelve outcomes, but the two changes have been to add two outcomes [2002], and to edit these outcomes [2003] to more properly reflect the mission of LTU-ECE. In addition, an Entrepreneurial outcome is being developed.

The present fourteen outcomes are

1. an ability to apply knowledge of mathematics, science, and engineering
2. an ability to design and conduct experiments, as well as analyze and interpret data
3. an entry-level ability to design an electrical/computer engineering system, component or process to meet predetermined design requirements
4. an ability to function as a member of a multidisciplinary team
5. an ability to identify, formulate, and solve electrical/computer engineering problems
6. an understanding of the professional and ethical responsibilities of electrical/computer engineers
7. an ability to produce effective oral, graphical and written communications
8. a broad education necessary to understand the impact of engineering solutions in a global and societal context
9. a recognition of the need for, and the ability to engage in life-long learning
10. a knowledge of contemporary, technical issues

11. an ability to use the modern techniques, skills and tools of electrical/computer engineering

12. an ability to design, fabricate, construct and test circuit hardware

13. an ability to design, test, and debug systems consisting of both software and hardware

14. and an ability to design and develop programs and hardware for microcontrollers and real time computer systems and the ability to do computer program development.

LTU-ECE has had feedback from the alumni, IAB, faculty, and students that business skills, or entrepreneurialism is an important feature for electrical and computer engineering students. The ECE program flowcharts for electrical and computer engineering courses have been redone majorly in 2002 and 2003 to reflect the entrepreneurialism in LTU-ECE. All students will have the following entrepreneurial items in their curriculum: updated entrepreneurial senior projects, Intro To Projects course requirement, Business Plan course requirement, and Project Management course requirement. One fewer math and/or ECE technical elective is now required, as a result of the additions. The outcomes will be changed to reflect the new Entrepreneurial content. The suggestions made in May 2003 for the Entrepreneurial outcome were:

1. Kelvin Shih, Ron Foster, Ken Howard, Joe Asik, Eugene Feng:
An understanding of the entrepreneurial engineering process including (1) needs identification, (2) project/business selection, (3) prototype construction, (4) business plan selection (5) by-in/funding decision, and (6) start-up plan.

2. Tim Potochick, Miah Baset, Dick Maslowski, Riyadh Hermez:
An ability to implement all aspects of the entrepreneurial engineering process including teamwork, communication, business management, and risk taking.
Other miscellaneous notes and suggestions for entrepreneurialism from this group:

- important characteristics:
- risk taker
- leadership role
- self assured
- project management/finance trade offs
- communication/presentation
- teamwork

3. Joe Gagnon, Mark Doede, Hassan Hassan:
version 1: an understanding of the entrepreneurial engineering process. note: add differentiators as they become dominant.
version 2: same as version one, including evaluation, empowerment, and innovation.

4. Rick Johnston, Lisa Anneberg, Peter Csaszar:
version 1 [adopted]: graduates possess elementary business skills such as project management, and the ability to formulate business plans.
version 2 [voted down unanimously, however]: grads understand the tools and techniques of project management and the formulation of business plans.

5. Assessment Activities and Assessment Results

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

A. STUDENTS

The students assess the mission more often. In addition, they are assessed by professors each semester for each class. This frequent feedback is a smaller loop with more chances for improvement. The students are assessed using four distinct assessment instruments, each with different missions:

1. End of the course assessment of the outcomes.
   This has been completed a total of eight times since 2000, which is two full yearly cycles. Each professor analyzes the data for this evaluation each semester, and emails the spreadsheet to the student data coordinator, Dr. Lisa Anneberg. The results appear on the website and are discussed at two faculty meetings per year. The analysis involves identifying the top three deviations from the expected significance of the outcome, according to the course coordinator and entire department. The deviations are explained, with action items suggested - which are monitored by LTU-ECE. Two areas of concern will be topics in 2004: ethics and

2. Exit interview just prior to graduation for LTU-ECE
   This has been completed a total of two times. This assessment instrument is one page long, in electronic format, and based on the outcomes and objectives. Dr. Anneberg is the student stakeholder coordinator, and is in the process of compiling a histogram of the comments for improvement for LTU-ECE.

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

4. Exit interview just prior to graduation for the COE [college of engineering]
   This assessment instrument is 10 pages, and detailed information is gathered. The questions were not based on the outcomes or objectives, but very useful information is gleaned from this instrument each year. The faculty in the department review these results at one department meeting per year. Since the Alumni survey is taken shortly after this assessment, care was given by Dr. Kolasa to not give identical surveys. The numbers appear to be similar to the Alumni survey, where 88% of respondents gave LTU-ECE a satisfactory or better rating.

B. FACULTY

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

- Prof. Ron Foster - department chairman, CQI meeting coordinator
- Dr. Lisa Anneberg - coordinator of computer engineering CQI effort

- Dr. Michael Cloud - coordinator of entire department CQI effort
- Dr. Robert Farrah - coordinator of self-study document CQI effort
- Dr. Hassan Hassan - coordinator of alumni stakeholder CQI effort
- Prof. Kelvin Shih - coordinator of faculty stakeholder CQI effort, and direct assessment coordinator
- Dr. William Kolasa - coordinator of alumni stakeholder CQI effort
- Dr. Richard Johnston - coordinator of graduate program CQI efforts
- Dr. Joseph Asik - coordinator of action item: laboratory improvement

The faculty have had three assessment instruments:

- Comments on the Student Outcomes assessment - faculty can easily see the student assessment. They comment, present action items, and these numbers are reviewed at faculty meetings twice a year for each course.
- Comments on the CQI form - faculty can give non-course related suggestions, assessments, and action items.
- Yearly 'Suggestion Contest' conducted on Blackboard. Nine pages of detailed suggestions, answers, and short comments were compiled. Nearly all faculty participated, and the most surprising outcome is that professors were able to answer other professor concerns directly.

C. ALUMNI

One major Alumni survey was conducted in 2002, and the results are were analyzed with Excel in depth. Eighty-eight percent of surveyed Alumni gave LTU-ECE a satisfactory or better rating. The Alumni had graduated in the past five years, and the survey had a return rate of 22%. Dr. William Kolasa presented the results at the May 2003 faculty meeting, and actions items were developed: improvement of laboratories, improvement of computer software skills, and improvement of computer hardware skills. Dr. Joe Asik is presently overseeing a major improvement of the control lab and the Matlab simulation lab - which should improve the status of all three action items. The recent alumni are considered the most relevant, and another major assessment is not planned since similar data would be reported. Under consideration is a shortened survey concentrating on the lifelong learning outcome, since alumni have the proper perspective on this part of the mission.

D. INDUSTRIAL ADVISORY BOARD

The industrial advisor board meets regularly twice per year [May and October], and has met four times since 2001. Prof. Ron Foster organizes these events, and has a specific detailed agenda [so individuals who can't make the meeting can have input]. The format reviews the outcomes, objectives, and new assessment results as separate agenda items, but is not limited to these topic. Other topics include departmental website, development of a graduate program, ongoing research, and review of the mission statement. The format is a brunch meeting, and is similar to a one-on-one interview, and many suggestions for LTU-ECE are presented and discussed. The most significant contribution of this activity is the revision of the outcomes which support the mission statement. LTU-ECE's

Entrepreneurial focus is strongly supported by the IAB [industrial advisory board] and the new outcomes have been guided by this stakeholder group.

E. EMPLOYERS

Dr. Hassan Hassan is the professor in charge of the employer assessment. He has developed a one page assessment tool in 2001 for the employers, which is reviewed annually at the LTU-ECE March faculty meeting. The assessment tool is based directly on the outcomes of the department. The format of the assessment is an individual interview. This ensures that all questions are answered and the rate of return is 100%. Dr. Hassan prepares annually a Pareto chart which highlights the major results of the assessment. The major difficulty with this assessment is that the employers give overwhelmingly glowing reviews. Most universities conduct this type of assessment for employers, and find the same biased data. Not surprisingly, no changes were suggested on the basis of this assessment. Thus far, Dr. Hassan has interviewed 23 employers and will continue to interview employers at the rate of four per year. The assessment will be reviewed and replaced when a suitable alternative is developed.

3. ACTION PLAN FOR 2003-2004

LTU-ECE will continuously improve, and has a detailed plan outlined above for accomplishing this task. Assessment of the outcomes is a part of the plan, and must continuously be undertaken in order to ensure that the mission, the stakeholders, and LTU-ECE remain responsive to the changing environment.

Mechanical Engineering Department
Objectives and Outcomes Assessment
Summary 2002 - 2003

1. Program Education Objectives, Outcomes, and Accreditation Status

The Mechanical Engineering (ME) Department and the other programs in the College of Engineering at Lawrence Technological University are accredited by the Accreditation Board for Engineering and Technology (ABET). ABET 2000 criteria established in 1998 set forth new measures to assess engineering programs. The ME department has adopted the 11 ABET outcomes as their outcomes for the Bachelor of Science degree.

Program Objectives for the Master of Engineering Management (MEM) Degree

The course of study leading to the Master of Engineering Management (MEM) is designed to provide students with advanced professional skills. Specifically, students in this program will:

- Have the opportunity to interact with other professionals from different disciplines in the industry
- Expand their knowledge of specific technical disciplines in their field of study Apply scientific principles in solving work-related engineering management' s problems
- Have the capacity to enhance their professional careers
- Enhance their ability to communicate professionally
- Have the requirements and background to pursue a doctorate degree program

Program Objectives for the Master of Science in Mechanical Engineering (MSME) Degree

The MSME program' s mission is to offer a high quality master' s level degree that will allow students to obtain advanced technical knowledge and skills that are necessary for modern mechanical engineers and will also allow them to pursue a higher technical degree. The program objectives are

- To provide students with advanced engineering principles and mathematical knowledge
- To refine students problem solving and communication skills
- To provide students with specialized technical techniques in their chosen professional field
- To provide students with the necessary skills and information to sustain them in a contemporary mechanical engineering career

To promote the importance of higher education and cultivate a philosophy of " life-long learning" among students

Program Objectives for the Master of Science in Automotive Engineering (MSAE) Degree

The MSAE program' s mission is to offer a high quality master' s level degree that will allow students to obtain advanced technical knowledge and skills that are necessary for

modern automotive engineers and will also allow them to pursue a higher technical degree in the field of automotive engineering. The program objectives are

- To provide students with advanced engineering principles and mathematical knowledge as applied to automotive engineering field.
- To refine students problem solving, leadership and communication skills.
- To provide students with specialized technical knowledge in the automotive engineering field.
- To provide students with the necessary skills and information to sustain them in a contemporary automotive engineering career.
- To promote the importance of higher education and cultivate a philosophy of " life-long learning" among students.

Program Objectives for the Masters of Engineering in Manufacturing Systems (MEMS) Degree

To produce a manufacturing systems integrator who is capable of the following.

- Select appropriate materials for the product
- Know the capabilities and limitations of manufacturing processes
- Utilize new technology
- Manufacture to quality requirements
- Utilize resources effectively
- Specify, develop and/or utilize manufacturing systems
- Manage and lead the new manufacturing enterprise
- Communicate effectively

Program Objectives for the Doctor of Engineering in Manufacturing Systems (DEMS) Degree

To produce a manufacturing systems specialist who is capable of the following:

- Provide comprehensive knowledge of manufacturing engineering systems
- Develop abilities to utilize existing knowledge to solve real manufacturing problems
- Perform applied research with minimum resources to obtain maximum information
- Utilize modern manufacturing practices to produce cost effective and reliable products
- Develop abilities in generating proposals and identifying methodologies to solve industrial problems
- Utilize the best resources in industry to solve real problems
- Develop leadership and management abilities to effectively coach diverse cross-functional teams

2. Assessment Activities and Assessment Results

a) Assessment Objectives

The assessment goals of the Mechanical Engineering Department for the 2002-2003 school year, together with those of the University Assessment Committee, were to develop and implement written and oral communication rubrics, and work on the assessment of leadership in the mechanical engineering curriculum.

In addition, the directors of the mechanical engineering graduate programs (MEMS, MSAE, MSME) were asked to provide program objectives by August 30, 2003.

Similar to the written assessment of courses performed at the end of Spring 2002 semester, the Mechanical Engineering Department conducted an on-line assessment of all general and mechanical engineering classes at the end of the Fall 2002 term. The students were asked to rate the course on its applicability to the a through k ABET outcomes, using a 0 - 3 scale (0 = no emphasis, 1 = minor emphasis, 2 = emphasis, 3 = strong emphasis). The results were then compared to the course coordinator' s ratings of how the course supported the a-k outcomes.

b) Assessment Results

With the assistance of the humanities and technical communication departments, rubrics were developed for written and oral communication. In addition, the mechanical engineering faculty agreed on a " Writing Through the Mechanical Engineering Curriculum" document in which mandatory writing assignments for specific general and mechanical engineering courses would be specified in the course packs. The course coordinators will then ensure that each instructor for the course each term requires those particular writing assignments and uses the rubric.

The on-line assessment was completed for the majority of general and mechanical engineering classes at the end of the Fall 2002 term; however, it was determined from the results of the Spring 2002 and Fall 2002 terms that it was difficult to determine any useful conclusions from these data, so this assessment practice was abandoned for the Spring 2003 term.

There were no meetings of the Mechanical Engineering Industrial Advisory Board during the 2002-2003 school year.

3. Action plan for 2003 - 2004

Dr. Laura Lisiecki, Assistant Chair of Mechanical Engineering, began pulling together the ABET report during the summer of 2003. This report is due to ABET in June 2004, but will need to be reviewed by the University administration before then. Faculty have been asked for their resumes, and course coordinators have been asked to provide course packs which include learning objectives for each course, and ratings of how the learning objectives correlate with each a-k outcome. These documents will replace the course packs which rated the entire course in terms of the a-k outcomes.

The new course packs, which include learning objectives, have the added benefit of providing data for a secondary assessment goal that was suggested for the 2002-2003 school year. Several faculty thought that it was important to eliminate the overlap of

topics in courses by coordinating syllabi. With the new course packs and their associated learning objectives, these course overlaps should become apparent. This will be a topic for faculty discussion in the Fall 2003 term.

The Mechanical Engineering Department, together with the University Assessment Committee, did not actively assess leadership in the 2002-2003 academic year. It may be possible to glean some data for this outcome through examination of senior project peer assessments and/or results from the new entrepreneurial program; however, the topic will need to be addressed further in the 2003-2004 school year, both by the University Assessment Committee and the Mechanical Engineering Department faculty, in preparation for the Fall 2003 ABET visit.

Engineering Technology Department
Objectives and Outcomes Assessment
Summary 2002-2003

1. Program Educational Objectives, Outcomes and Accreditation Status

The Engineering Technology Department is not accredited by ABET. It therefore, is not required to follow the ABET 2000 criteria as the other Engineering departments are required to do. The Department developed objectives in the spring of 2002. The Department also developed their main assessment goals, to be implemented beginning with spring, 2002.

There are some unique qualities of the Engineering Technology Department. There are no full-time faculty members devoted solely to the department. All faculty members are either half time or they share their load with the College of Arts and Sciences. The teaching schedule within the department is primarily evening courses, on Tuesday and Thursday evenings. This time frame only allows for three classes during the regular evening time periods. A fourth class can only be implemented if the faculty member teaches during the day, in another department. There are no courses from within the Engineering Technology Department that are common to all five associate degree programs. There is however, one course that is required of all four of the bachelor degree programs. That course is TOM3113, Operations Management.

Educational Outcomes for Programs Offered in the Engineering Technology Department

Associate of Science in Construction Engineering Technology

- The student will be able to design basic structures using lumber, masonry, and stone
- The student will have a working knowledge of the construction of various buildings, including materials, excavation, mechanical systems, and laws and building codes
- The student will have a basic understanding of soils, soil conditions, and testing procedures for soils
- The student will have a working knowledge of surveying, including use of both a traditional and a laser transits
- The student will have a working knowledge of structural basics, including joining techniques, structures, and loads
- The student will have an applied knowledge of construction estimating, specifications, regulations, and project management

Associate of Science in Electrical Engineering Technology

- The student will understand basics of AC and DC principles
- The student will understand solid state electronics, as used in various amplifiers, oscillators, multivibrators, etc.
- The student will have a working knowledge in graphic communication for the electrical and electronics industry.
- The student will have a working knowledge in the design and applications of logic devices

- The student will have an applied knowledge of microprocessors, hardware, structure, and programming
- The student will have a working knowledge of various motors, control devices, and feedback devices
- The student will have a working knowledge in electronic communication

Associate of Science in Manufacturing Engineering Technology

- The student will have an applied knowledge of manufacturing methods, processes, and metrology methods
- The student will have knowledge of ergonomics, safety, and project management
- The student will have a working knowledge of quality methods
- The student will be versed in engineering economics
- The student will be able to work as part of a team
- The student will have a working knowledge in graphic communication, both paper and computer based

Associate of Science in Mechanical Engineering Technology

- The student will have a working knowledge in graphic design using computer design software
- The student will have a working knowledge of applied forces, both static and dynamic
- The student will have a working knowledge of stresses applied to industrial materials
- The student will have a working knowledge of heat, fluid flow, and measurement of both
- The student will have a working knowledge of properties and strengths of materials
- The student will have the ability to design components and assemblies, accounting for strengths of various materials, and loads applied in their functional applications

Bachelor of Science in Engineering Technology

- The student will broaden his/her technical knowledge base in areas of technical communication
- The student will be able to work in transitional positions allowing them to communicate both with technicians and engineers
- The student will have a broad background in technology, mathematics, and sciences
- The student will have a professional knowledge of engineering knowledge and skill areas required by technologists
- The student will be able to recognize technical problems and solve them using computers, instrumentation, and their own knowledge base

Bachelor of Science in Construction Management

- The student will have a professional knowledge of the construction of various buildings, including materials, excavation, mechanical systems, and laws and building codes
- The student will have a professional knowledge of structural and graphic design

- The student will have a professional knowledge of business and management practices as applied to the construction industry
- The student will have a professional knowledge of construction engineering practices
- The student will have a professional knowledge of construction safety, construction estimating, and project management practices

Bachelor of Science in Technology Management

- Understand and be able to apply fundamental business and organizational principles, i.e., principles relating to management, financial accounting, managerial accounting, marketing, finance, organizational behavior, information systems, business law, operations, and strategic management
- Understand and be able to apply fundamental management principles, i.e., planning, organizing, staffing, leading and controlling
- Understand and be able to apply fundamental principles relating to a specific technological area, e.g., computer technologies; one of the following engineering technologies: construction, electrical, manufacturing and mechanical; one of several other areas in which LTU offers undergraduate degrees, and one of numerous areas in which other colleges and universities offer majors and associate degrees
- Understand and be able to apply fundamental general education principles, i.e., principles related to mathematics, statistics, physics, chemistry, computer usage, technical and professional communication, language and literature, social sciences, and economics

Bachelor of Science in Industrial Management

- To learn how Operations Management relates to the other departments of an industrial organization
- To learn quantitative techniques of operations management and when to apply them
- To understand manufacturing terminology and concerns in order to effectively communicate with engineers and technologists
- To learn the principles of Planning, Organizing, Staffing, Directing and Controlling
- To understand the fundamentals of marketing and finance

2. Assessment Activities and Results

Assessment Objectives

The Engineering Technology Department identified four objectives for the 2002-2003 school year. They are:

a. Alumni Survey form, to be developed by the Engineering Technology Department.
b. Using the evaluation developed for adjunct faculty members, determine minimum acceptable scores, followed by addressing the low results with the faculty members in question.
c. Administration of a pre/post-test in MGT2203, Management and Supervision.

d. The Department is starting to develop course portfolios for various courses that are offered. Portfolios with include:
    - Course Syllabi
    - Copies of examinations
    - Homework assignments
    - Examples of student work that is rated as excellent, average, and poor.

Assessment Outcomes

Assessment results for the 2002-2003 school year are varied. The following are results that have been achieved:

a) An updated student survey is being developed, but a final version is not yet complete.

b) Evaluation of adjunct faculty members, (all but three of our faculty members are adjunct faculty members) based on student reviews of their professors. Two faculty members scored marginally, and Dr. White has addressed the issues. They are being monitored closely and are required to assemble a course portfolio for their classes. The portfolio will be collected and reviewed at the end of the semester. Final evaluation will be based on student reviews, the course portfolio and an interview with Dr. White. They are adjunct faculty members who do not have tenure. They can be replaced if necessary.

c) Professor Condit developed and administered a pre-test to his students in the fall semester of MGT2203, Management and Supervision. He followed by administering a post-test at the end of the course. He was examining student knowledge in the areas of planning, organizing, staffing, leading, and controlling. There were a total of 25 questions that students responded to. The class average on the pre-test was 64 percent. The post-test had a class average of 83 percent, which shows an overall improvement of 19 percent. The section of the examination dealing with " leading" showed the lowest percentage of correct responses on both the pre-test and post-test. The spring term results showed a 28 percent increase in correct responses overall. As a result of added emphasis in the area of " leading," the correct response was increased from 63 percent to 97 percent. The spring class size was small so the data may not be statistically significant but it certainly shows a trend.

Assessment of group work has been a haphazard process for many years. This issue was addressed during the fall of 2002 and spring of 2003. Students in TIE2063 Manufacturing Processes 1, TIE2153 Manufacturing Processes 2, and TIE4115 Senior Project are subject to group writing and group presentations. Dr. White requires that all students participate in the group presentations. Both group writing and group presentations are difficult to assess because the finished work may not accurately represent the work that was undertaken by each of the team members. Reading of the finished document can be evaluated fairly easily with regard to the quality of writing, but it is not so easy to assess who performed the brunt of the work. The same holds true with the presentation. One may observe a good presentation without knowing who is actually responsible for the information presented. A simple instrument was developed that has solved much of the problem. The instrument asks the team to evaluate themselves as well as all other members of the team. The instrument asks the team members to estimate the percentage of work that they performed, and to estimate the percentage of work that the other team members performed. This is a percentage value and should total 100 percent. The same technique is used for evaluation of the presentations. An overall value is placed on the

work of the team, and it is then modified with the weights that are placed on the work performed by the team members. The end of the first year showed that students generally tend to assess themselves more stringently than their teammates. Occasionally, there will be students who do not carry their share of the work. The slackers, in every case but one, were honest about their low levels of participation. There was one student who reported that he did 50 percent of the work, while his teammates reported his participation at about 10 percent.

3. Action Plan for 2003-2004

a. Part-time faculty will be asked to write instructional objectives for their classes. These will follow the format presented in How to Write and Use Instructional Objectives, by Norman Gronlund. Support for the writing of these objectives will be from the secretary in the Engineering Technology Department.
b. A copy of Classroom Assessment Techniques: A Handbook for College Teachers, by Angel and Cross will be issued to all full-time faculty in the Engineering Technology Department. It is intended that the faculty members will take one class and develop assessment methods for the class.
c. A course portfolio will be required of every faculty member, both fulltime and part-time. Assistance with this will be available from the Engineering Technology Department secretary.
d. Assessment of group work will continue on a more formal basis during the 2003-2004 school year.

College of Management
Objectives and Outcomes of Assessment Summary
2002-2003

1. Program Educational Objectives, Outcomes and Accreditation Status
The International Assembly of Collegiate Business Education accredits all of the graduate programs in the College of Management. In addition, the Master of Business Administration is accredited by the Association of Collegiate Business Schools and Programs.

Program Objectives for the College of Management

The program objectives for all the programs offered in the College of Management, both graduate and undergraduate are:

- To have constituent satisfaction as the highest priority
- To ensure continuous improvement and academic excellence.
- To ensure smooth operations and improve efficiencies.

2. Assessment Activities and Results

a.) Assessment Tools for 2002-2003

1. Graduate Survey
2. Alumni and Current Student Survey
3. MBA Pre/Post Knowledge Tests
4. MSIS and BSIT ICCP Exam
5. CIMBA Case Studies
6. MSIO Capstone Knowledge Test
7. Faculty Analysis of MBA Program Review (Alumni/Student Focus Groups)
8. Adjunct Faculty Liaison

b.) Assessment Results for 2002-2003

1. Graduate Survey - The overall results are (using a five point scale: 1=superior, 5=unsatisfactory) averaged 1.92.
Highlighted questions include:
    a. The helpfulness of your program to your work
    b. The knowledge and skills gained in your program
    c. How well your program met stated objectives
    d. Tuition worthwhile
    e. How well your program met your needs and interests
    f. Overall quality of the instruction you received

The results of the Graduate Survey show high satisfaction with their learning experience at LTU' s College of Management. Based on this year' s results, action plans to make changes and improvements are deemed unnecessary.

2. Alumni and Current Student Survey – In October of 2002, a survey was developed by the DBA committee and administered to current College of Management graduate students and Alumni to determine overall interest in pursuing a Doctorate of Business Administration degree. Of 550 College of Management respondents (422 current LTU students and 128 Alumni), 310 respondents (56%) would seriously consider enrolling in LTU' s proposed Doctorate of Business Administration degree within the next five years.

   The results of this survey show high satisfaction with continuing education in the College of Management.

3. MBA Pre/Post Knowledge Tests – Exams were given in HRM6023, MGT6063, MIS6013, MGT6013, FIN6013, MKT6013, MGT6043, OPM6033 and MGT6053.

   Most sections showed a significant improvement with 22-78% on pretests to 28-90% on posttests.
   A table was created for analysis showing detailed results for each course. This information allowed faculty to make decisions concerning improvements for specific courses. Improvements include: revising some tests to focus on major concepts presented in course objectives and the option to provide incentives to perform well in posttests (i.e., a small portion of the final grade).

4. MSIS & BSIT ICCP Exam – Out of 101 students who took the exam, 38 (37.6%) passed at the CCP or ACP level, and 63 (62.4%) scored below passing levels. This is a marked improvement from last year where only 23% passed at the same levels. The most remarkable improvement was seen in the international students performance. All international students passed at the CCP level (score of 60 or above); whereas last year, all international students scored below passing levels. Still, concerns of student value and continued overall poor performance of the ICCP exam have caused faculty to consider other more pertinent measures that may replace the current assessment. Portfolios are being considered for academic year 2003-2004.

With the recent hiring of an IT Director, final decisions will be forthcoming.

5. CIMBA Case Studies – For module 5 conducted this year, results show a marked improvement from pretest (49%) to posttest (71%) results for Strategy Knowledge tests. To help reinforce key learnings, posttests were returned to students and best answers led group question and answer sessions.

   Based on the above scores, no action plans to make changes and improvements are deemed necessary at this time.

6. MSIO Capstone Pre/Post Knowledge Test – The pretests and posttests were administered. Pretest scores averaged 39%. Post-test scores averaged 44%. The slight improvement indicates a high degree of deficiency in the collective knowledge of the class. However, based on the average final grades of the class, students appear to be able to apply what they have learned in solving case problems. Analysis showed that there are two possible reasons for the discrepancy: the test is concentrating on narrow areas of the field that are insignificant in reaching real-world solutions that involve problem solving; and, the students real abilities are better expressed in

qualitative (essay or case) examinations rather than pre-worded select responses (multiple choice).

The MSIO Director has proposed a two-pronged strategy to improve the assessment tool: 1) Rewrite the knowledge test with a focus on major concepts/procedures, and 2) Administer an essay-based case test on one half of the class while the other half take the revised knowledge test. The results will be analyzed and based on the results compared to final grades; a final assessment will be selected for future classes.

7. Faculty Analysis of MBA Program Review (Alumni/Student Focus Groups) - Faculty analysis of last year' s MBA program review showed strong evidence that graduate students lacked written and verbal communication skills. In addition, curriculum changes are required for the MBA program.

   In January 2003, the COM launched a new initiative " Business Communication Tutorial Assistance." This program provides students with convenient ongoing assistance for improving written and verbal skills by visiting the COM tutoring lab. In addition, changes to the MBA curriculum are underway. Ethics will be woven into all coursework and Management Accounting will be required. Pre-core Business Communications will be required and Advanced Business Skills will be offered as an elective.

8. Adjunct Faculty Liaison - To improve communications between administration and faculty, a new position was created to assist in the individual needs for training and development of faculty. The Adjunct Faculty Liaison' s primary role is to communicate COM expectations, train and develop faculty, provide communication forums for new initiatives, and resolve student/faculty concerns.

   Since Fall 2002, a number of faculty initiatives have occurred as a result of the new position. Initiatives include: semi annual faculty meetings, communicating a number of COM expectations for faculty and students, providing consistency in syllabus development, and speedy resolution of faculty/student concerns.

c.) Summary of Changes and Improvements based on Assessment Results of 2002-2003

- Graduate Survey - The results of the Graduate Survey show high satisfaction with their learning experience at LTU' s College of Management. Based on the scores, action plans to make changes and improvements are deemed unnecessary.
- Alumni and Current Student Survey - The results of this survey show high satisfaction with continuing education in the College of Management.
- MBA Pre/Post Knowledge Tests - Most sections showed a significant improvement. However, changes include: revising some tests to focus on major concepts presented in course objectives and the option to provide incentives to perform well in posttests (i.e., a small portion of the final grade); blending essay questions with multiple choice to assure understanding of concepts.
- MSIS & BSIT ICCP Exam - Concerns of student value and continued poor performance of the ICCP exam have caused faculty to consider other more pertinent measures that may replace the current assessment.
- CIMBA Case Studies - Since transitioning from multiple choice to essay questions, a significant improvement was evidenced. Based on the recent scores,

no action plans to make changes and improvements are deemed necessary at this time.

- MSIO Capstone Pre/Post Knowledge Test – Rewrite the knowledge test with a focus on major concepts/procedures, and administer an essay-based case test on one half of the class while the other half will take the revised knowledge test. The results will be analyzed and based on the results compared to final grades; a final assessment will be selected for future classes.
- Faculty Analysis of MBA Program Review (Alumni/Student Focus Groups) – Analysis showed strong evidence that graduate students lacked written and verbal communication skills. In addition, curriculum changes are required for the MBA program.
- Adjunct Faculty Liaison – New position created to improve communications between administration and faculty and to assist in the individual needs of training and development of faculty.

d.) Realized Outcomes for 2002-2003

Major actions and realized outcomes for 2002-2003 include:

- Improved measures for student learning outcomes
- Expectations developed and communicated to faculty and students
- Creation and ongoing implementation of COM Business Tutoring Lab
- Increased communication between faculty and staff
- Curriculum changes to improve student knowledge and skills

3. Action Plan for 2003-2004

- MBA Pre/Post Knowledge Tests – Revise instruments as needed and consider incentives for improving posttest results
- MSIS & BSIT ICCP Exam – Consider value-added alternatives to the ICCP exam and make final decision for assessment tool by Spring 2004
- MSIO Capstone Pre/Post Knowledge Test – Revise existing knowledge test and create an essay-based case study; compare results against grades and determine an ongoing assessment for the program
- CIMBA – The CIMBA Director will coordinate and communicate outcomes assessment in all modules; report results and site overall changes and improvements for the program
- Complete MSIS and MSIO program reviews
- DMIT and DBA – Directors will report findings for individual courses and incorporate changes and improvements for future courses
- Adjunct Faculty Liaison – Continue to develop new initiatives aimed at improving the effectiveness and efficiency of the College of Management faculty and staff; major initiatives include: Creation of a Faculty website and an electronic version of the Faculty Manual
- Improve the effectiveness of COM operations by incorporating technology into a variety of existing procedures

Assessment Committee Meetings Minutes

Assessment Committee Meeting Minutes
October 4, 2002,
2:00 p.m.- 4:00 p.m.

Attending: Lisa Anneberg, David Bindschadler, Don Condit, Walter Dean, Badih Jawad, Joogsub Kim, Barry Knister, Laura Lisiecki, Virginia North, Mary Thomas, Maria Vaz.

1. Departmental Summaries of Assessment Day Break-Out Sessions

Badih asked the members of the committee for the summaries of the break-out sessions. Currently only two summaries were turned in – Mathematics/Computer Science and Electrical and Computer Engineering.

2. Update on writing Assessment (General Education) – Prof. Knister and
3. Professional Writing Assessment

Since the Assessment Day, the department of Humanities has been working on revising the Writing Criteria Standards. The department wants to make sure that the final standards are clear and that all faculty, including adjunct faculty will apply them in their courses. The final version of the criteria will be finished at the end of the semester. Barry also explained that he expects that the criteria will be uniform, applied to all the students at the university.

Several comments followed:

- Walter Dean explained that the criteria developed by the humanities department will not always fit the chemistry needs. The chemistry department is developing their own criteria that apply to the scientific nature of the professional writing in the chemistry field. Walter would like a clarification on if the university will adopt university –wide criteria or if there will be criteria for each program. There was some discussion in the clarification that the criteria standards defined by the humanities department apply to the general education and expository writing, not professional writing within each program.
- David Bindschadler explained that assessment is to evaluate a particular goal. In our case, the university wants to make sure that all students are able to write.
- Maria Vaz defined writing in different aspects, expository writing and technical writing within each profession.
- Laura Lisiecki explained that for science and engineering in addition to expository writing, student must show proficiency in writing technical reports (lab reports included) and research papers. She suggested that science and engineering faculty get together to look at this issue.
- In architecture, Joon Kim explained that he requires his students to write position papers, but the writing in studios depends on the instructor. The architecture accreditors feel that their students show proficiency in writing based on their own criteria. Virginia North asserted the same position, and explained that their accreditors feel that their students write at the level they are expected to.

Badih Jawad distributed National Survey of Student Engagement (NSSE) results for the committee to see the self-assessment of LTU students about their own reading and writing skills.

Maria Vaz announced that Peggy Maki would like the copies of the slides used in the Assessment Day presentation.

4. Oral Communication Assessment

Badih Jawad asked that departments review the concept of oral communication criteria. Most did not get to approach this topic during Assessment Day. Virginia North explained that Architecture will not use oral communication criteria, because they use jurors instead. They will distribute the criteria to help the students to prepare the presentations but will not give it to the jurors.

E.E. has a speech rubric and they are using it at a trial basis in October for the first time. ME likes the idea and will review the EE version in their upcoming departmental meeting. Don Condit from technology thought that there were a lot of areas of a speech to try to track, particularly during a short speech. The area of "time allotment" would be something that he would not track.

5. Schedule of Meetings

From now on, the meetings will be every other Thursday at 9:00 a.m.. The next meeting will be on October 17th.

6. New Business

No new business. Badih reminded that every department should get to him the summary of the break-out sessions at Assessment Day.

7. Adjournment

The meeting was adjourned.

Attachment

Memo

To: Assessment Committee
From: Maria Vaz
Date: October 16, 2002
Subject: Assessment of Student Professional Writing Skills

These are two proposals for discussion with two approaches in the assessment of professional and technical writing

Proposal 1

1. The committee in conjunction with the faculty will determine what are the broad areas of professional writing for each major.
2. For each broad area of writing, a faculty sub-committee (part of the assessment committee, with other faculty if necessary) decides on the methodology and time line to assess this area of writing.
   Example: It was already identified that for engineering and science students, technical reporting (in particular lab reports) is a broad area of writing. Faculty from engineering and science decide how to assess laboratory writing (starting in the freshmen year through the senior year).

   It is expected from all Lawrence Tech students to write technical reports, or papers in their field. A sub-committee with members of the assessment committee and one faculty member from the technical communication program decide on the methodology to use to assess technical writing from the freshmen and sophomore level to junior and senior level for all LTU students.

The total decision process will be completed by the end of the semester, to start implementation during the spring semester.

Proposal 2

A multidisciplinary committee of four people, each representing one of the colleges and with public reputation within the college of being good writers, is charged of collecting random samples of technical student writing at the senior level (the number of samples will be proportional to the population of seniors in each major) and together grade these samples of written work. The committee will define the criteria standards, and at least two people will grade the same report.

This subcommittee will write a report of their findings with recommendations to b implemented.

Assessment Committee Minutes
October 17, 2002

Attending: Lisa Anneberg, Don Carpenter, Don Condit, Walter Dean, Badih Jawad , Joon Kim, Barry Knister, Laura Lisiecki, Virginia North, Mary Thomas, Maria Vaz.

1. Approval of Minutes
   The minutes of the October 4 meeting were approved

2. Reporting and discussion of departmental results from the break-out sessions during Assessment Day

Lisa Anneberg (Electrical and Computer Engineering)

The minutes presented by Lisa reflect the changes the department is making in the curriculum and the program. The department is putting all the changes made into a database of our five audiences (students, faculty, alumni, employers and advisory board. The department is struggling with direct measures. The survey for alumni could be considered a direct measure. We are thinking about ways to change our student tool. Both the faculty and the students are not happy with it. Also, during the breakout session David Bindschadler from the computer science department talked with us about the assessment of computer engineering, since about 1/3 of the courses are taken in the computer science department.

Laura Lisiecki (Mechanical Engineering)

During the breakout session the group divided into two groups. The ME faculty compared the surveys results with the ABET syllabi, and discussed how to change the course objectives to better meet the a-k criteria. The discussion will continue at future faculty and team meetings to " close the loop". This survey will be done on-line in Blackboard. Laura is working on putting the department objectives on Blackboard. Time did not permit the ME faculty to discuss the writing rubric. Both the oral and the writing rubrics will be discussed in future meetings. In the next meetings the department will also identify 2-3 goals to assess for the 2002/2003 academic year. In a posterior meeting the ME faculty decided to adopt the writing standards developed by Melinda Weinstein with some modifications.

Barry Knister (Humanities, Social Sciences and Communication)

The department divided in three groups. The English area discussed modifications to the writing standards, developed by Melinda Weinstein. The Technical Communications and Business Management programs met separately and they worked on the draft of their educational goals. Currently, Barry is receiving comments from faculty in the department about the writing standards. The time-line continues to be the end of the semester. The faculty doesn't want to use affective language in the description of the standards and it is difficult to come up with a document that the all faculty can endorse. The department is collecting samples of student work (at the beginning of the semester and at the end of the semester) for the English Fundamentals and the English Composition courses.

Don Condit (Engineering Technology)

During our breakout session the faculty talked about evaluations of adjunct faculty. This is an important part of the student assessment in the department because of the large number of adjunct faculty. Bill White will talk with some of the faculty to discuss their evaluations. The faculty decided to start Class Portfolios for each course with the syllabus, the tests and the assignments for each class and examples of good, average and weak student work. During the discussion the faculty felt that there was lack of communication between the adjunct faculty and full-time faculty. It was decided to move the adjunct faculty mail boxes inside of the department office. The faculty also discussed Oral Communication. They did not have time to go over the results of the graduating senior survey. They will do it in a departmental meeting.

Joon Kim and Virginia North (Architecture)

The department of Architecture and Art and Design met together during the Assessment Day. During the breakout session faculty of both departments discussed the responses to the NAAB, FIDER and NASAD. Virginia also distributed an example of the communication goals for FIDER as well as the response of the visiting team to the observed student work. Virginia also explained that, in the case of NAAB and FIDER, once LTU receives the report, it responds to the concerns and explain how the department will correct them. In addition, both accreditation agencies also require a bi-annual report to monitor the progress until the next visit. In the case of NASAD, the department needs to explain how they will correct the weaknesses described even before the final report of accreditation is issued.

Don Carpenter (Civil Engineering)

During the breakout session the faculty discussed the Noel-Levitz satisfaction inventory results. They also discussed issues related to the graduate programs. The faculty discussed the implementation of student portfolios in the Ethics and Professional Issues course. The student portfolios will have two components – design and communication.

Walter Dean (Natural Sciences)

The department spent half of the time discussing the Noel-Levitz results. The faculty reached the conclusion that the responses were not specific enough to suggest what could be done about them. In some situations the faculty did not understand the question or the response, for example, quality of instruction.

Maria Vaz suggested that focus groups are very good to probe responses of questions that are too general but address an area of concern. The students are in general quite candid.

The rest of the time Chemistry and Physics met separately. Chemistry went through the assessment plan and decided on what to do for the year and divided tasks. Physics spent most of the time rewriting their assessment plan and assigning responsibilities. Both programs had a follow-up meeting. Chemistry discussed the writing criteria for chemistry majors. Physics continued the discussion started at assessment day.

3. Proposals on assessing writing and oral skills of upper class levels at LTU
Maria explained her proposals on assessment of professional and technical writing for upper class level. (See attachment). The proposal 1 follows-up from discussions in the committee during the last meeting. The assessment committee would find common broad areas of types of writing that are expected from our graduates, The results would be discussed in the departments for faculty feedback. After these broad areas are identified, subcommittees will work on the assessment for each broad area. Examples are laboratory reports that most engineering and science students have to do, and scholarly articles.

The second proposal is simpler and can be implemented faster. Many universities use this approach. Maria explained that she would like the committee to discuss the proposals to see which one is adequate, or what changes should be made.

Walter Dean said that he prefers the proposal 1 but he cannot see how we could accomplish the time-line. Maria explained that it was important to come up with a methodology to assess professional writing before the end of the semester. Laura Lisiecki suggested that we should put together two or three subcommittees with faculty from engineering and natural sciences that will identify a variety of practices, i.e., lab reports, oral communications, senior project reports, etc... Walter Dean explained that engineering students taking chemistry do not write lab reports. They respond to questions that are in general not more than one sentence long. Maria suggested that there should be a discussion about what each department is doing followed by a resolution for next steps. (For example chemistry could explain what the freshmen students do in the lab, and all the programs that have freshmen taking chemistry will understand it better) Natural Sciences, or at least physics and engineering can discuss the standards for all the labs that engineering students take. Walter Dean asked if we use proposal 2 where would the samples of students work come from. Maria explained that during the fall the methodology would be decided and the implementation and collection of student samples would happen in the spring semester. Most seniors will do the report on the senior projects in the spring. Virginia also explained that some architecture students don't have to write a final report as seniors but there are other classes at the junior level in which they have to write. Also writing is not necessarily the same among different groups of students. Maria reiterated that the point was that all of us, and employers of our graduates expect our graduates to write professionally. How do our students measure up when they leave? We need to find a methodology that will allow us to assess if they write at the expected level. These have different meanings for different programs. Scholarly papers for humanities majors are different than scholarly papers for engineering, management students or architects. However, all of them are supposed to be able to write a scholarly paper in their field of expertise.

Barry explained that his department can't impose standards of excellence for other programs.

Don Carpenter brought back the discussion about the lab reports and suggested that engineering would come up with their criteria and invite physics to attend the meeting. Walter explained that there was no point in chemistry attending the meeting, but they should send samples of their reports. Don asked that each engineering department start by establishing consistency within. He was not sure if there was consistency in his own department.

Virginia explained the dimensions of student writing used by the accreditation institutions for architecture: clarity, grammar, spelling and syntax. She would like to understand if architecture needs to go beyond that, Maria asked if students when they graduate are supposed to do more than what the accreditors expect.

Don asked if the committee knows what are all of us doing in each curriculum. Shouldn't we start by understanding what there we are? Then we will see how to proceed.

It was decided to proceed in two ways – Engineering will work on the laboratory reports, first within each department followed by the college with physics.
Each member of the assessment committee will search the courses in the curriculum program that use writing and what kind of writing. The committee will collect an inventory of courses in which writing is required.

4. New Business
   No new business

5. Adjournment. Meeting was adjourned.

Assessment Committee Minutes
October 31, 2002

Attending: Lisa Anneberg, David Bindschadler, Don Condit, Walter Dean, Badih Jawad, Joongsub Kim, Barry Knister, Laura Lisiecki, Virginia North, Maria Vaz

Agenda

1. Collecting Assessment Day presentations to send to Dr. Peggy Maki
2. Discussion of proposal 2 submitted by Maria Vaz on the assessment of student professional writing
3. Oral presentation rubric
4. Request to meet with departments during their meetings to discuss assessment goals and support
5. New business
6. Adjournment

1. Collecting Assessment Day presentations to send to Dr. Peggy Maki

Badih Jawad explained that Dr. Peggy Maki asked if we could send the presentations given by the members of the committee during the Assessment Day symposium. There was a discussion about if this was appropriate and in addition if Dr. Maki was taking advantage of LTU in her book. During the discussion it was also mentioned that we do not know how Dr. Maki will use our materials. She could use our materials as a bad example of assessment and we will not have any control of how this information will be used. It was decided that Maria Vaz will send the agenda of the Assessment Day, including the agenda of the symposium. In addition, Maria will also send materials that individual faculty will provide at their own discretion. She will notify Dr. Maki that we want to see how she is going to use the LTU faculty materials.

Several members of the committee voiced their opinion on several issues associated with the assessment committee:

- The committee is not focused on the work it is doing. Each meeting the committee discusses different topics and the members of the committee get assignments unrelated with the topics discussed.
- The minutes are sent out very late and an action summary should be sent after each meeting such that the members of the committee are aware of things they are supposed to do. It is impossible to collect materials when the committee members receive a mail message two days before the meeting.
- The meetings need to be managed using the Robert's Rules of Order.
- The meetings should be shorter, no more than one hour.

Maria Vaz will send the minutes of the committee a week before each new meeting. Lisa Anneberg suggested that from now on the committee should use Robert's Rules of Order. After each meeting, Badih Jawad will send out a summary of the actions for next meeting.

To explain that the committee has been lacking focus, Walter Dean commented that when the department of chemistry was focused on developing technical writing criteria for their students, in the committee Walter learned that the humanities department was revising the general writing criteria, so he did not know if chemistry should continue to develop technical writing criteria, or wait for the humanities revisions. Now the committee changed the focus to the laboratory reports and finally the committee members have to collect the courses in which students write. Where is the focus?
Maria Vaz explained that all of these activities are related with assessment of technical writing and were agreed by the committee in previous meetings. In addition not everybody was associated with each one of the activities. The laboratory reports consistency issue is related to the engineering departments and physics. Chemistry was not involved in the issue since the engineering students taking chemistry as freshmen don't write lab reports. The issue related to the collection of data on courses in which students have to complete writing assignments was agreed by the committee. Lisa Anneberg said that in Electrical and Computer engineering the students write in all the courses because the faculty considers exams a writing exercise also.

2. Discussion of proposal 2 submitted by Maria Vaz on the assessment of student professional writing

The discussion started by Badih Jawad reminding the members of the committee of the proposal 2, proposed by Maria Vaz during the October 16 meeting.
The proposal 2 to assess the technical writing for upper classmen states:
A multidisciplinary committee of four people, each representing one of the colleges and with public reputation within the college of being good writers, is charged of collecting random samples of technical student writing at the senior level (the number of samples will be proportional to the population of seniors in each major) and together evaluate these samples of written work. The committee will define the criteria standards, and at least two people will evaluate the same report.

Maria explained that the reason why she brought back this proposal to the table is to get a baseline for the current writing skills of our students. We need to know if the actions we implement will improve the students' technical writing skills. Also at this moment we have only anecdotal evidence (opinions of individual professors) about the quality of the technical writing skills of our upperclassmen students. We know that the NSSE survey shows that our students write and read less than students in other institutions. Does the amount of writing correlate with the quality of writing? There was a discussion about the need for a baseline since we should look for the goal and not the past. Barry Knister commented that writing skills are analogue to sports skills. To get better at it you need to practice, and in general students will be better writers if they are required to write more. Barry Knister then proposed a motion to accept the proposal 2. A new discussion started about the limitations of the proposal related to the way the samples should be collected. Barry Knister suggested that the samples collected should be of A, B, C and D papers. Don Condit explained that since the writing samples of upperclassmen were related to different courses, grades would not reflect the writing ability of the students but their knowledge of the topic. Don suggested that the samples should be collected randomly.

Maria suggested that the distribution of the collected samples should be proportional to the enrollment for the different programs. Walter Dean commented that he would only support the proposal if it contained a statement saying that the members of the technical writing committee will be remunerated for their work. Maria Vaz explained that there was money in the assessment budget for it.

A motion to vote for a modified version of the proposal was accepted. The committee voted to accept the proposal unanimously. The approved proposal states:

A four-person multidisciplinary committee representing the four colleges will be created and charged with collecting random samples of junior/senior level professional writing for the purpose of evaluating written student work. The committee will define the criteria for evaluation. Appropriate monetary compensation for the members of the committee will be decided at a later date.

3. Discussion of courses with writing assignments

In addition, the committee decided on the following actions:

i. Each department in the college of engineering will evaluate the consistency of writing criteria for lab reports. Once each department decides what it wants to do, the representatives of the four engineering departments will meet to discuss consistency in the college. After the college decides on this issue the committee members will meet with physics faculty to decide on the consistency of reports through out.
ii. All members of the committee will produce a list of courses in the programs offered by his/her department in which students have to complete writing assignments like essays, reports, position papers, etc.

Barry Knister moved that the rest of the agenda items be tabled for the next meeting and for the meeting to adjourn. The meeting was adjourned.

Assessment Committee Minutes **DRAFT**
November 14, 2002

Attendees: Badih Jawad, Lisa Anneberg, David Bindschadler, Don Carpenter, Don Condit, Walter Dean, Joongsub Kim, Laura Lisiecki, Virginia North, Mary Thomas, Maria Vaz.

Agenda:

1. Blackboard Site (Lisa Anneberg)
2. University Technical Writing Committee
3. List of courses in which writing is required
4. Oral Communication Skills
5. New Business
6. Adjournment

1. Blackboard Site

Lisa Anneberg introduced a proposal requesting a Blackboard site for the Assessment Committee. The following motion related to the Blackboard site was approved:

1a) Maria Vaz will email Jennifer Panczak to have her create a Blackboard site for LTU University-Wide Assessment. All committee members will be administrators. All LTU faculty, full and adjunct, will be enrolled as "students".
1b) Maria Vaz, Badih Jawad and Mary Thomas will be the full time administrators to ensure that it stays up to date.
1c) It will be the official clearing house of all official documents.
1d) All committee members will add information or links under "Course Documents".

The proposal was accepted unanimously. Maria Vaz will contact Pam Lowry to set up the new Blackboard site.

2. University Technical Writing Committee

Laura Lisiecki introduced a motion to ask for the four deans to nominate a representative from their college to the committee that will assess the junior/senior level professional writing. The nomination of the members of the committee should follow the guidelines of the motion passed by the Assessment committee in the meeting of October 30, 2002. The motion also stated that Badih Jawad and Maria Vaz will make this request to the Deans' Council.

During the discussion Walter Dean suggested that the committee should not ask for the nomination of the members of the committee until the compensation amount and compensation process are decided. Laura Lisiecki responded that the committee should start meeting during the spring term to decide on the criteria, procedures to follow including deciding on how the writing samples should be evaluated - they could do it themselves, or they could hire graduate students to do it, etc.... During the spring semester the members of the committee should not be compensated, since this is part of their service to the university. Alternatives of the methods of student sample evaluation

will require different models of compensation. The committee should also discuss these alternatives and come up with a proposal. David Bindschadler agreed with Laura.

The motion was voted on, with all committee members present. There were nine votes in favor and zero votes against.

3. List of courses in which writing is required.
Badih collected from every committee member the list of courses in their departments that require writing. Maria will organize the data for next meeting.

4. Oral Communication Skills
Badih distributed several oral communication rubrics that could be used to assess the oral communication skills of our students. Don Condit commented that in his opinion the criteria used by the College of Management needed more clarification. Don Carpenter explained that the civil engineering department also has an oral communication rubric that is divided into components, it helps to clarify the criteria. The civil engineering faculty feel that it makes the rubric more effective. Lisa Anneberg also explained that the department of electrical and computer engineering has its own rubric that is given to the instructors and the students to prepare and evaluate oral presentations.
It was discussed whether the members of the assessment committee should do an inventory of courses that require oral presentations. Maria suggested that since there are already so many departments that have oral communication criteria, that looking at the different rubrics is probably not the best way to start looking at this issue. LTU does not necessarily need a universal oral communication rubric. There are requirements for students to give oral presentations at the freshmen, sophomore, junior and senior levels. We should look at the same strategy we did for the writing – general education (the oral communication skills in the sophomore year) and then the oral communication skills at the senior level. We could assess the lower division skills in the technical and professional communication courses and the upper division skills in a different way. David Bindschadler proposed a motion for the committee to table this discussion, since the representative from the humanities department was not present. Barry Knister would be able to clarify several issues related with the technical and professional communication course. The motion was voted on and accepted.

New Business
Lisa Anneberg suggested that all the members of the committee should sign themselves onto all of the departmental assessment blackboard sites. Several members of the committee felt that this was too excessive but a motion was passed for Badih Jawad, Mary Thomas and Maria Vaz to sign up for them. Maria will contact Pam Lowry to ask for the three members to be signed in as students in the different departmental assessment blackboard sites.

Laura Lisiecki mentioned that one of the things that she would like to see discussed was the ethics and etiquette of e-mail. This could be discussed with the faculty teaching the technical and professional communication courses.

Badih will ask one of the members of the faculty of technical communications to come to the next meeting. He will also ask Barry Knister to bring the syllabus of the technical and professional communications course.

The meeting was adjourned at 10:30 a.m.

Respectfully submitted by Maria Vaz

Assessment Committee Meeting Minutes
December 5, 2002

Attending: Lisa Anneberg, Don Carpenter, Don Condit, Walter Dean, Badih Jawad, Joongsub Kim, Barry Knister, Laura Lisisecki, Mary Thomas, Maria Vaz.

1. Approval of last meeting minutes
The minutes for the November 22, 2002 meeting were approved.

2. Meeting times for spring semester
Badih Jawad explained that the spring availability schedule requested from each member of committee was not consistent. He asked all the members of the committee to send again the schedule with the times of non-availability. He will work on it for next meeting.

3. Assessment Week for the Spring Term
The spring assessment week will be on the third week of April. This week will be dedicated to collection of data. We will advertise on the Tech News.

4.Oral Communication Skills Assessment
Barry Knister talked with Brian Pedell and Larry Johnson and ask them to come to a Assessment committee meeting to talk about the material covered in the course Professional and Technical Communications and to discuss if and how the course could be used to assess the oral communication skills of our students at the sophomore level. Barry presented the following list of assignments generated in the Technical and Professional communications course:
Resume
Feasibility Study
Report
Executive summary.

Laura Lisiecki asked about possible processes to assess oral communication skills for all students. Barry explained that, with the help of the Technical Communications faculty we could develop a set of not very complicated criteria. In Barry's opinion the key for manageable assessment is to make the criteria simple and that answer the question " What are the minimum requirements that will make a successful oral presentation?" Barry also distributed the course descriptions for the courses offered by the Technical Communications program.

5. New Business

Maria updated the committee on the matrix with the student course writing information . She still needs to talk with Barry and the English department and Don Condit to summarize the information for several courses. The information should be ready for the first meeting of the spring semester.

The meeting was adjourned.

Assessment Committee Meeting Minutes **DRAFT**
Thursday, January 23, 2003

Attending: Lisa Anneberg, Bill Arlinghaus, Don Carpenter, Patty Castelli, Don Condit, Walter Dean, Badih Jawad, Joongsub Kim, Barry Knister, Laura Lisiecki, Mary Thomas, Maria Vaz.

Visitors: Kevin Kelch, Brian Pedell.

1. Approval of Minutes for December 17, 2002 Meeting
   The minutes were approved. MariaVaz will post the minutes on the assessment Blackboard site.

2. Assessment Report Update
   The Assessment Report for the 2001-2002 is almost complete. All the departments already revised or are in the final stages of revising the summaries prepared by Badih, Mary and Maria. The report will be distributed in the next meeting.

3. Chicago's NCA Conference and Workshop
   The proposal made by Badih Jawad and Don Carpenter was accepted by NCA. They will present in the NCA conference in April in Chicago. Badih distributed the paper that will appear in the proceedings of the conference. Don Carpenter thanked Mary Thomas for her help in the preparation of the paper. Maria Vaz encouraged the members of the committee to present their work at their professional conferences. The Assessment budget can fund several trips.

4. Objectives for Graduate Programs
   Badih explained that by the end of this academic year, all the graduate programs at Lawrence Tech should have developed their educational goals and outcomes. Some of the programs already have them, but others need to be developed.

5. Matrix of Courses with Writing Components
   Maria Vaz distributed the 1st draft of the matrix with courses containing writing assignments. She asked each of the committee members to revise the information on the courses offered by their department. She asked to specify the amount of writing done in the course, minimum number of papers and/or number of pages, for the cases for which is possible.

6. The University Committee to Assess Professional Writing
   Badih explained that the committee to assess professional writing was formed. The members of the committee, nominated by each academic dean are: Dale Gyure for Architecture, Brian Pedell for Arts and Sciences, Michael Cloud for Engineering, and George Hayden for Management. Badih, Maria and Mary will meet this afternoon with the committee to discuss their charge.

7. Presentation and discussion of Technical and Professional Communication Course

At the request of the Badih, Brian Pedell explain the Technical Communication program and Kevin Kelch explained what is covered in the technical and professional communications course.

Kevin Kelch explained that the technical and professional communications course is the result of the combination of three courses that used to be taught in the quarter system. There is a written and an oral communication component in the course. The advisory board of the Technical Communications program fine-tunes both the program and the technical and professional communications course at the request of the faculty. The assignments of the course are the following:

- Training for job search – students develop an application letter, a resume and learn how to prepare for the interview
- Instructional Manual – (group project) students prepare an instructions manual for some application (some are for technical applications like for example software applications, others for applications not as technical)
- Final Project – it is an individual project, takes 1/3 of the course and is worth about 50% of the final grade. For this project the student prepares:
    1. A written proposal for the project and to make an oral presentation of this proposal.
    2. A progress report
    3. A final written report (at least seven pages) and a final oral presentation (in a business format).

The course is about 70% writing, 10% oral communication, and 20% collaborative work.

Laura Lisiecki commented that we are all sure that the course accomplishes its goals and that the faculty does a great job, but the question is how we make sure that the students get better as they progress through the curriculum. Laura gave examples of her class in which some students don't know how to write a research paper. Both Brian Pedell and Kevin agreed that if students don't continue to practice it is possible that not only they don't improve but that at the end of the senior year they have worse skills than at the end of the technical and professional communications course. Brian Pedell explained that some universities have writing across the curriculum and there is an additional communications course focused on the field of the major. Maria Vaz explained that both the engineering and architecture programs have already 132, 133 credit hours and is difficult to add another three credits to the curriculum. Don Carpenter explained that not all the writing across the curriculum programs use a new course in the curriculum, some require writing assignments for most of the courses in the curriculum and the faculty teaching these courses works

directly with the communications faculty to make sure the students write properly, and the writing skills are graded as well as knowledge.

The discussion on how the technical communications faculty could help the committee in the assessment of the oral communications skills of our students followed. Maria explained how the assessment of writing skills is being processed and asked if a parallel process could be used for oral communications – the oral communication skills of students for the core curriculum would be done at the technical and professional communications course level, and then there would be a different process to assess the skills at the senior level. Brian Pedell asked if there was a set of standards or rubric given to students on the expectations of oral communications that would allow the students to improve their skills. There is no uniformity. Different departments have different practices. In some cases a rubric is shared with both students and faculty and part of the grade includes evaluation of the oral presentation skills. Other departments have a rubric that is shared by the instructors that may or may not share it with the students. And in other cases there is no rubric. Brian Pedell and Kevin Kelch are willing to work with representatives from the assessment committee to decide on the standards to be developed. Once the standards are developed the 2nd step is to make both faculty and students aware of the standards and once they are used, measure the skills of the students based on those standards. In particular it is very important that adjunct faculty are included in the process.
Patti Castelli explained that in the College of Management, 50 to 60% of the faculty is adjunct. The college created an adjunct liaison position with the adjunct faculty because there was a disconnect between decisions and expectations for full-time and part-time faculty. Both Walter Dean and Bill Arlinghaus agreed with Patti. It is extremely important that adjunct faculty understand the expectations, and the role of assessment. Without the cooperation of the part-time faculty the assessment program will not happen.
Joon asked if a committee would be formed to write the oral communication standards. Maria responded that the committee has to decide what is the best way to proceed since there are already several programs that have standards developed.

8. New Business
   No new issues were raised.

9. Adjournment
   The meeting was adjourned.

Assessment Committee Meeting Minutes
February 6, 2003

Attending: Lisa Annebeg, Bill Arlinghaus, Don Carpenter, Patty Castelli, Don Condit, Walter Dean, Badih Jawad, Joon Kim, Laura Lisiecki, Mary Thomas

1. Approval of Minutes of January 23, 2003 meeting
   The minutes were approved. Badih distributed the list of committee members with current e-mail addresses.

2. Update on the 2001-2002 Assessment Report
   Badih explained that each member of the committee will receive a copy of the complete report with appendices for each one of the departments. Melinda Weinstein and David Bindschadler will also receive a copy because they were members of the committee in 2001-2002. All full-time faculty will receive a condensed version of the report, the introduction and the summaries for each department without the appendices.

3. Update on Assessment meetings with department heads and Assessment Committee Members
   The individual meetings with the department chairs and the assessment committee members ended on Monday. Each department showed great progress in the assessment initiatives. All meetings went very well.

4. Update on the Committee to Assess Professional and Technical Writing
   The committee to assess the professional and technical writing has met already to begin to define the strategy and process of work in the spring semester. If the committee wants to use the Senior Design Project, we might have a problem because the report is written by the team rather than a person. This is a common concern for engineering, computer science and others. Mary will talk with Brian Pedell so that the committee is aware of this.

   Badih reminded the committee that the changes for the writing matrix are due at the next meeting. Maria will send the electronic file to Joon.

5. Assessment Blackboard Site
   The Assessment Blackboard site is available through www6.ltu.edu. This is the server for Fall 2002. Changes for the Spring 2003 will be updated in March. Angela needs more time to reload the site on the new server.

6. Presentation on Assessment by Prof. Don Condit
   Badih explained that during the individual meetings that Don Condit had shown an example of how to use a pre, post test assessment in his class. This assessment was done in the course MGT2203 – Management and Supervision. Don thanked Pat Castelli for her help. In the pre-test Don picked five questions from each of the five management functions. The pre-test was given at the beginning of the semester, all 25 questions. Since this course does not have a cumulative final, Don took the five

questions for each function and asked them again during the chapter exams. He recorded the results for the questions for each test as post-test responses. Notably, in the management function of Leading, the percentage of correct answers improved but did not reach the level of understanding evidenced in the other functional areas. Patty Castelli suggested that the pre-test should be also used to assess the preparation of the students for the class and to show the faculty which areas are weak for students. This could help the faculty member to prepare the course structure and to identify the material to be emphasized.

7. Presentation on Assessment by Dr. Virginia North
   Virginia's presentation was postponed for next meeting.

8. Oral Communication Assessment
   The following motion was made: To ask Kevin Kelch and Brian Pedell to develop standards for oral communication skills to be a model that can be adopted for all departments. The committee should share with Kevin and Brian the work already done. Also this motion is acceptable as long as the departments are allowed the flexibility to make adjustments as they see fit.

9. New Business
   Don Carpenter announced that the paper we proposed for the Best Assessment Practices Symposium, at Rose-Hulman was accepted. This presentation will be similar to the presentation at the NCA conference but will also include accreditation issues for engineering.

10. Adjournment
    The meeting was adjourned at 10:45 a.m.

Assessment Committee Meeting Minutes **APPROVED**
February 20, 2003

Attending: Lisa Anneberg, Bill Arlinghaus, Patty Castelli, Don Condit, Walter Dean, Badih Jawad, Joongsub Kim, Barry Knister, Laura Lisiecki, Virginia North, Mary Thomas

1. Approval of Minutes for the February 6, 2003 meeting
   The minutes were approved with corrections from Bill Arlinghaus and Don Condit.

   The binders containing the 2001-2002 Assessment Report were distributed. Badih announced that all full-time faculty will receive a smaller version of the binder. Lisa Anneberg asked if the report could be stored electronically. Patty made some corrections to the introduction page.

2. Matrix of courses with writing components
   Several members of the committee submitted changes to the writing matrix. Walter Dean will talk with Maria about some of his questions. Joon sent the electronic versions to Maria. ME still have some more corrections after submitting a draft. Bill Arlinghaus submitted his changes. The others will submit the changes next time.

3. Update on the assessment of Oral Communication skills
   Badih explained that he had contacted Brian Pedell about assisting the committee in the assessment of oral communication skills. Brian does not have time, and instead, Kevin Kelch will work on an overall rubric to bring back to the group. Maria will give him samples used in several of the departments at LTU.

4. Presentation to discuss the position of " Adjunct faculty liaison to improve overall effectiveness in the COM" (Dr. Patty Castelli)
   The position of Adjunct Faculty Liaison started in September 2002 in the College of Management. Each faculty meeting occurs before the start of the semester. The next meeting for the faculty is in May. As a result of one of the faculty meetings a statement on "academic integrity " was developed. Student performance was also an issue brought up and discussed more openly after a faculty meeting. Some faculty members weren't sure what to do when a student doesn't perform, so the memo shown on appendix was prepared.
   Results:
   1. Improved communication with adjunct faculty members
   2. Better understanding of expectations
   3. Better sense of belonging
   4. Improved overall effectiveness
   5. Increase satisfaction of faculty

   80% of the faculty participated in the fall meeting. Patty's presentation was well received by the committee. This is a great model to follow. (See Power Point presentation)

Assessment Committee Meeting Minutes
March 6, 2003

Attending: Badih Jawad, Don carpenter, Kevin Kelch, Mary Thomas, Joongsub Kim, Walter Dean, Don Condit, Barry Knister, Maria Vaz, Lisa Anneberg, Patty Castelli, Laura Lisiecki

1. Minutes of the February 20, 2003 meeting
   The minutes were not presented. They will be approved at another meeting.

2. Update from Prof. Kevin Kelch on assessment of Oral Communication Skills
   Prof. Kevin Kelch explained that he has been working in the development of evaluative criteria for oral communications, using several models including the models currently used in the College of Management and in Civil and Mechanical Engineering. He presented the rubric he developed. The Oral Communication Criteria presented were discussed. Patti Castelli gave some suggestions for small changes. Don Carpenter commented that in many cases there are group presentations and the rubric should have a group evaluation component. He suggested a version for individual presentations and another for group presentations. Another suggestion was to evaluate only the four major components and keep the details without grading. This would speed up the process of evaluation, but still give good feedback on what was positive or negative about the presentation. It was decided that Kevin will modify the criteria to incorporate the suggestions discussed and will bring it back to the committee. Joon explained that in the College of Architecture he sees the criteria being distributed to the students such that they understand how to give a good presentation, but he is not sure that the instructors will use it with the detail presented. He thinks that the main points will be used in the grading but probably the details will not be included. Each studio has its own goals and it is difficult to ensure that the criteria will be used uniformly. Kevin explained that he understands the situation, and he hopes that students taking courses following the Technical and Professional Communications course, recognize the language when they see the criteria . Kevin will also develop criteria for group presentations. Barry Knister asked how would we make sure that oral presentations are widely practiced by our students. An example was in math classes, each student should present a problem at the board at least one per semester.. Kevin will send the revised criteria to Badih through e-mail.

3. Discuss motion from last meeting to change adjunct faculty contracts
   Maria updated the committee on a conversation she had with the provost about the motion. The provost agreed to look into the matter and asked Maria to look into the adjunct contact form to see how could it modified to show payment by course versus payment by contact hour. There is a slight problem with some courses . For example in Architecture, the Integrated Studios are taught in a team and it is difficult to see how to pay each member of the team without stating contact hours. Maria will investigate possibilities to see how can we change the

payment process.. Maria also presented to the provost the rate of pay for adjuncts at other universities in comparison with LTU. This was a study done by the Humanities Department. Most universities pay by course. Although LTU does not pay the highest rate it is not the lowest also. The provost said that he would be open to give a recommendation to increase the rate by one or two dollars. Barry explained that just change the contract of the adjunct faculty from an hourly rate to a course rate is not enough. We need to increase the rate since we are asking them to do more. On the other end Patti said that there must be a change in the culture and expectations. Lisa Anneberg explained that she had taught at Wayne State and the teaching rates there were higher than at LTU. It is possible that there are different rates for different departments. Maria will investigate that.
Maria agreed that it is fair to increase the rate of pay, but on the other end we need to make sure that we do not get into a culture where anything more than teaching class is additional and needs to be paid. It is also culture. The educational environment changes and teachers are expected to do different things. As professionals all of us understand that we need to keep up with our field. The university will not survive if we, the faculty do not update our methodologies and teaching strategies.

4. Discuss oral communication skills with juniors and seniors
   The discussion was postponed because with do not have yet the evaluative criteria and is too premature to think about it. Maria asked if we should do it university wide, or if we should leave it to each department?

5. Review LTU's Assessment Action Plan
   The review of the Plan will be done in the next meeting

6. New business
   No new business was introduced

7. Adjournment
   The meeting was adjourned

After Patty's presentation some issues were discussed about the percentage of teaching load taught by adjuncts. Since there is such a large percentage of teaching done by adjuncts, these issues are very important. Everything the adjunct does is related to contact hours. Maybe adjunct contracts should be changed to a flat rate (to include meetings and other assessment tasks.) What else can be done to keep the adjuncts at LTU more hours? Most come right before they teach and leave right after they teach. The College of Management has good success with their initiatives but it could be reflective of their volume of " graduate" adjunct faculty. They are paid at a higher rate. Patty suggested that each department should develop a list of expectations that are presented to the adjunct faculty at the time of the interview.

Laura Lisiecki introduced a motion for the provost to alter the Letter of Agreement to remove references to contact hours and reflect any additional expectations. Bill Arlinghaus seconded the motion that was passed unanimously.

The question was raised if the faculty handbook on the section of adjuncts should be amended to reflect these possible changes.

After several minutes of discussion, Badih introduced a motion to table this discussion for the next meeting. Copies of the current Letter of Agreement and Faculty Handbook will be brought to the next meeting. The motion was seconded by Bill Arlinghaus. The motion was carried.

Patty reminded the committee that the liaison concept was the main focus of the presentation.

5. Presentation on Assessment (Dr.Virginia North)
   Virginia explained the process of the interior architecture internship where students have to work in the field for 150 hours. These internships are done after they completed most of the course work. As part of the course requirements the students at the end of the internship have to review the entire degree (course by course) and do a final summary of their assessment of the degree. There is also an opportunity for the students to give suggestions for improvements. This assessment is one of the components of their final exam in the internship course. Students tend to be more honest and show the value of each course. It doesn't seem to hinder their comments even though their names are known. The focus is on improvement and the students are told to feel at ease with their comments to help improve the program. This gives to the student a chance to have impact in shaping the degree. Students need to feel "trust" from the department in order to complete this task.
   The results are reported to students. Several changes have come from the results of this assignment.

6. New Business
   No new business

7. Adjournment
   The meeting was adjourned at 11:50 a.m.

Assessment Committee Meeting Minutes **APPROVED**
March 20, 2003

Attendees: Lisa Anneberg, Don Carpenter, Patty Castelli, Don Condit, Walter Dean, Badih Jawad, Joongsub Kim, Laura Lisiecki, Mary Thomas, Maria Vaz.

Guest: Kevin Kelch

1. Minutes of the last two meetings
The minutes of the March 6 meeting were approved. The minutes of the Feb 20 meeting were not distributed.

2. Oral communication rubric (Prof. Kevin Kelch)
Kevin Kelch presented the revised Oral Communication Evaluative Criteria (Rubric) based on discussions of last meeting. The committee showed its appreciation for Kevin's work. The document is flexible and allows different groups to adapt it as they see fit for their situations. There was a discussion about the length of the document. The committee decided that the document should be formatted to fit in two pages. Maria said that her office would work on it and would bring the new formatted document for next meeting.

Maria explained that would be a good idea to try to see how this evaluative criteria work this spring. Since the end of the semester is approaching and seniors will do their final oral presentations, we could ask the instructors that have students doing presentations to use this rubric to evaluate their skills. This is a simple exercise that would help us to implement and discuss the assessment of oral communication assessment skills next year.

3. Distribute Writing Assessment Matrix.
Maria distributed the revised version of the Writing Assessment Matrix. She asked the committee members to revised the document once more, and send to her any changes. She also suggested that this information should be discussed within each department. The faculty should analyze the amount of writing their students are required to do until they graduate.

4. Distribute the summary of meetings with department chairs/representatives
This document was not distributed in the meeting. It will be ready for distribution for next meeting.

5. Assessment Action Plan.
The committee revised the Assessment Action Plan developed one year ago. Several timelines had to be adjusted. Maria will revise the changes and will bring them to the next meeting.

6. Assessment Week
There was a discussion about the purpose of the Spring Assessment Week. Several faculty members have been asking if we are going to cancel classes again for

Assessment. It was clarified that the Spring Assessment Week is focused on the collection of data. Maria and Badih asked the members of the committee to discuss with their departments what assessment data will be collected during the assessment week. Maria explained that the provost's office will send to students' homes a survey on advising. It is important to know what each department plans to do for the committee to decide whether or not should call the attention of students and faculty that particular week. Next week each member of the committee should have a report prepared.

7. New Business
No new issues were brought up for discussion

8. Adjournment.
The meeting was adjourned.

Summaries of Individual Meetings with Academic Departments Compiled on April 7, 2003

The Director of Assessment, Dr. Badih Jawad, the Associate Provost, Dr. Maria Vaz, and the Coordinator for Institutional Research, Ms. Mary Thomas met with each member of the Assessment Committee and the respective department chair to review the 2002/2003 assessment plan for the department and for the update on the implementation of the plan. Part of the meeting was dedicated to a status report on the Action Plan described in the Assessment Report for the 2001-2002. A summary of the meetings follows.

Architecture

Mr. Joongsub Kim and Mr. David Chasco reviewed the assessment progress this year. The architecture department has an assessment committee chaired by Joongsub Kim. This year's assessment activities are focused on Integrated Design Studio 2. The committee meets weekly to define the plan for assessment of IDS 2. The deadline is February.

The assessment plan consists of the following – assess one or two of the NAAB criteria identified as part of a given course. The main outcome that will be assessed is team work along with collaborative skills. It is possible that other criteria may be assessed, however they will be secondary to the previously mentioned outcomes. IDS2 has four components: Architecture, Interior Architecture, Lighting, and Physics.

The educational goals for the Master of Architecture are defined. They are the 37 NAAB criteria. Joon asked for the deadline of the writing rubric. The department also reviewed the results of the graduating senior survey. The department also looked at the results of the Noel-Levitz Student Satisfaction Inventory and will follow up with Ms. Thomas to gather results of similar Architectural colleges from other parts of the country.

Art and Design

Dr. Virginia North explained the activities in the department of Art and Design based on the FIDER results:

1. Integrate building construction and safety in higher-level courses. The department changed the Allied Senior course to integrate these topics.

2. The department changed Integrated Arch 3 by adding more specifications and documentation to the course. The department also changed the Allied Studio by changing the project to integrate the whole space plan. This made a change from a studio focused on the renovation of a space to the design of new space, and thus increased the complexity of the project. The change is made as a response to the critique of FIDER, when they reported there were no noticeable developments in the students' work between the junior and senior years.

3. Better integration of decorative elements needs to be integrated into the program. As a result, the department changed Interior Architecture 2 to a lower credit integrated studio course with a separate lecture. The new course will include the decorative elements.

4. The percentage of non-certified NCIDQ instructors teaching the studio was too large (more than ½ of the instructors have to be certified). Faculty were reassigned to satisfy this requirement.

Assessment Plan for this year:

1. Document all changes and send to FIDER. In addition, collect samples of student work. Faculty members must read the report and follow through with the changes.

2. Advisory Board met and discussed the FIDER report. The main focus for the meeting was the revision of the proposal for the Master of Interior Design.

3. Senior students taking the internship studies class will write reports that the department can use to assess the curriculum (course by course), including improvements they would make to the curriculum. The department will tally the results and address the concerns that appear repeatedly.

4. All seniors register for an internship studies class. Upon finishing the class, they are evaluated by supervisors, who also evaluate the strengths and weaknesses of the curriculum. Many students show average knowledge of CAD, which is why the department feels the need to change the curriculum in order to remedy this situation. Two other examples of LTU student weaknesses are: knowledge of commercial products and lack of professionalism when they dress.

5. The department will have to develop the Educational Outcomes for the following programs: Facilities Management and the Master of Interior Design.

6. The curriculum of the Bachelor of Arts in Imaging has been completely revised. There will be two tracks: Graphic Design and Digital Art. Currently, the revisions are at the level of the faculty council and will proceed to the deans' council.

Civil Engineering

Dr. Don Carpenter and Dr. Nabil Grace, Civil Engineering Chairman, distributed and explained the status report for the Civil Engineering Assessment Program. The activities and the action plan for 2002-2003 is described below. The main emphasis of the work this year will be as follows:

1. Start the implementation of portfolios on design and communication for the Ethics and Professional Issues course.

2. Make changes to several undergraduate and graduate courses as the result of assessment results.

3. Continue the constituent feedback on the new Objectives and Outcomes for the Civil Engineering Program (rewritten this summer).

The department changed several of the tools employed originally because they were not producing results that were specific enough. The approach is changed in such a way that questions asked in the survey were not outcome based, but more general and focused on opinions. The questions are now outcome based.

Examples: Are you happy? Are we doing a good job?

The objectives were decreased from 8 to 5, with 13 outcomes (A to M). ABET has 11 outcomes (A to K).

The reporting format for the FE exam is now obtained from the council. The results of last year are not yet available.

This year the department also started using direct measures. Independent reviewers evaluated student projects. The members of their advisory board evaluated the senior projects.

Changes:

1. Increase the amount of computer applications in AUTOCAD. A change was needed for the freshmen students. The amount of computer usage is increased in the senior curriculum, which makes it stronger.

2. Sustainability: The department will change the course in transportation to ensure that sustainability is covered.

During the exit interview the department had very positive comments. The majority of students complained about the increase in tuition. Dr. Vaz agreed to bring the issue of the TMS (a third-party payment plan) to the Deans' Council. Every department on campus, including the academic departments, should have brochures on the TMS payment plan.

There are a few courses taken by the civil engineering students that are taught by the mechanical engineering department (i.e. Statics and Engineering of Materials). Some chapters that are important to civil engineering students were excluded in some cases. A while ago, the civil engineering department spoke with the mechanical engineering department about the situation. The former coordinator of the course assured the civil engineering department that the situation had been corrected, however he is no longer at LTU. The civil engineering faculty will do a follow-up with Dr. Steve Howell (Chairman of the Mechanical Engineering Department) and the new coordinator for the course to ensure that the problem is solved.

Dr. Maria Vaz explained that the Goals and Outcomes for the Master of Science in Civil Engineering and the Master in Construction Engineering Management should be developed by the end of this academic year.

Electrical and Computer Engineering

Dr. Lisa Anneberg, Dr. Michael Cloud, and Mr. Ron Foster, Department Chairman, explained their plans for the Electrical and Computer Engineering Department:

1. They will continue to survey the students in their courses on the extent to which the program objectives are covered in each course and will compare the results with the predictions defined by the professor.

2. The Industrial Advisory Board will meet twice a year for feedback about the different initiatives and curriculum issues in the programs.

3. The department continues to do a yearly alumni survey.

4. The department distributes employer surveys using the Contact Form. The department will do a short survey for each time there is a contact with an employee.

5. Faculty Assessment of the curriculum and courses continues.

The department is studying possibilities of direct measures for the assessment of student learning. Dr. Michael Cloud brought the idea of departmental common exams for the same courses. The pre and post-test concept was discussed for consideration in some core courses, along with the FE exam.

The College of Engineering is bringing a consultant to campus that will evaluate the assessment program and provide advice on whether it satisfies the ABET requirements. The consultant is the Dean of Engineering of Ohio Northern University. Ohio Northern University just completed the ABET visit.

Dr. Michael Cloud asked that Dr. Maria Vaz and Dr. Badih Jawad attend an Electrical and Computer Engineering department meeting to talk with the faculty about the importance of assessment. Dr. Vaz and Dr. Jawad agreed to attend when invited.

Mechanical Engineering

Dr. Badih Jawad went through the Action Plan for 2002-2003. Dr. Laura Lisiecki and Dr. Steve Howell explained that the main emphasis of the department this year is as follows:

1. Course objectives will be written for each of the courses taught in the department. In addition, course outcomes will be mapped to the ABET objectives.

2. The survey of the ABET outcomes will be changed in all of the mechanical engineering courses from a paper format into an on-line format on Blackboard.

3. The department will work on uniform writing criteria for all the laboratory reports in the department.

4. The department will survey the Co-op employees.

The Mechanical Engineering department wanted to benchmark the FE results, but unfortunately there are very few students that take the test.

The department is working on the written and oral communication skills. The faculty is evaluating the writing matrix to decide on the amount of writing and type of writing that should be done in their courses. The department is focusing on the students' ability to communicate effectively.

Last year the department worked on the ABET syllabi and the student survey for the ABET objectives in each course. The department is not satisfied with the results. The department would like to assess the curriculum continuity throughout the course objectives.

The department is also working on the development of Objectives and Outcomes for the graduate programs offered by the department.

Engineering Technology

Mr. Don Condit and Dr. William White, Department Chairman, explained the assessment progress of the Engineering Technology department. The department will revise the educational objectives and outcomes for all their majors by Fall 2003. The objectives should be created and validated by both full-time and adjunct faculty.

One common request they have from students is for daycare facilities for the evening. Dr. Vaz explained that this is not a problem the department can solve; it's a matter for the administration to consider.

The department is going to change the format of their exit interviews. The questions should be more specific to gain knowledge of the particular weaknesses the students experience.

The department is in the early stages of developing a new alumni survey. It will be done at the end of April. The survey will be sent out once it is ready.

Student evaluation feedback is on going. Full-time faculty members review the evaluations of the departmental part-time faculty. When there are problems, Dr. White speaks with the particular adjunct faculty member. At this moment there were two

adjuncts with specific problems on their faculty reviews. The department is in the process of following up with the results of these conversations.

The department is also developing portfolios for each course that contain the syllabus, copies of assignments and examples of student work for three different levels (excellent, average and low). TIE2063 has the portfolio complete. This semester the department will complete TIE2153 – Manufacturing Processes 2. Dr. White is now in the position of showing good examples of course portfolios to the other members of the faculty

Don Condit used a pre- and post test approach for one of his courses, MGT2203 – Management and Supervision. The results will be published soon. The students' response rate increased from 64.38% to 83.65%.

Humanities, Social Science and Communications

Mr. Barry Knister and Dr. Gonzalo Munevar, department chairman, explained the progress of the Humanities, Social Science and Communications department. The Technical Communication faculty already developed Educational Objectives and Outcomes for the Bachelor of Science in Technical Communications and the Master of Science in Technical Communications.

There is a plan for assessment for all programs consisting of four steps:

a) Definition of the skills that students should have – outcomes of each course.
b) Assessment of courses to see if they fulfill the outcomes designed. Both the Foundations and Development of the American Experience courses were changed in curriculum and methodology of teaching to achieve the outcomes of the courses.
c) Visitation and observation of the classes to ensure the classes are taught in a way so the student achieves the educational development expected.
d) Analysis of A, B, and C papers to evaluate the writing skills of students.

After evaluating the papers the full-time faculty and the department chair decided that some of the adjunct instructors should not return. There were some common problems found in the student papers taught by these teachers including no thesis and many grammatical and punctuation errors. In addition, fulltime faculty now mentor new adjunct faculty. This ensures they understand the department expectations in teaching and grading.

The analysis of A, B, and C papers for the World Masterpieces 1 shows that the department needs to ensure that all instructors are using the same standards to grade papers. This will also help students understand expectations before they write their papers. In addition, the department needs to analyze the assignments given to students to see if they are the cause for some of the low quality writing.

Technical Communications Program

40 to 50% of the students are transfer students that don't go through the LTU Core Curriculum. The infusion of these students sometimes decreases the standards.

The faculty of the Technical and Professional program progressed on their assessment tasks as follows:

1. The faculty wrote the educational Objectives and Outcomes for BS in Technical Communication as well as the Master of Science in Technical Communication.
2. The faculty identified how the courses relate to the Outcomes.
3. Classroom observations will take place on February 17-18.
4. There will be a collection of Technical and Professional papers in April as well as videotaping of the final project presentations. They will start with one class to see how it works. Class presentations for day sections are scheduled to be videotaped on May 1st and evening classes are scheduled for May 3rd.
5. The faculty plan to sample senior projects to evaluate the quality of work.

Business Management Program

This program has developed their Educational Objectives and Outcomes.

Mathematics/Computer Science

Dr. William Arlinghaus and Dr. David Bindschadler (department chairman) explained that the department still needs to finalize the goals for the programs in Mathematics, Computer Science, and Math/Computer Science. Currently they are still in draft form.

Bill Arlinghaus will work with Mary Thomas in studying the correlation of the following data:

1. Correlation of Placement test results with the grades of first math course taken at LTU.
2. Correlation of Placement test results with ACT scores for the Fall 2001, and Fall 2002.

The department will choose two goals to assess next year for their programs.

Natural Sciences

Dr. Walter Dean and Dr. William Madden reviewed their progress. The Natural Sciences department meets twice a month to work on assessment issues (dedicated to assessment results.)

Chemistry

The results of the ETS tests from seniors in both the Chemistry and the Physics majors are not in yet. For the last few years the results showed very specific gaps in our students' chemistry knowledge. The largest gap was in Organic Chemistry. The department believes the reason is that students only have Organic Chemistry in the sophomore year. There is no reinforcement at the upper class level. The faculty increased the Chemistry curriculum by one additional course, Advanced Organic Chemistry. This course used to be an elective in the Chemistry curriculum, but now is required.

The departmental faculty also analyzed the ETS exam and mapped the material covered in the exam with the curriculum to make sure they were able to identify courses in which the exam's material was covered. Seven students took the exam this year, so they cannot do significant data analysis in one year, but they will accumulate the data and will compare the results from year to year.

Dr. Madden conducted exit interviews with the graduating seniors. The questions he asked include:

1. Did we serve you well?
2. What changes would you make?
3. Do you feel you are well prepared to work in the field?

The plan for the academic year 2002/2003 includes the following:

1. The department has been working on a writing rubric for the laboratories. There is a possibility they will end up with multiple rubrics for their courses because the various laboratories have different goals.
2. In Spring 2003 Polymer Chemistry will be offered and a rubric will be developed for this course.
3. The faculty developed course objectives for University Chemistry, Organic Chemistry, Intermediate Inorganic Chemistry, and Physical Chemistry II.
4. The Placement exam was administered for a second time, at the end of Introductory Chemistry. These results were correlated with the results of the initial placement exam. The results showed that the student scored at the level of the students ready to start University Chemistry. This validates the placement exam as well as the productivity of Introduction to Chemistry.

Physics

The physics seniors also took the ETS test. The results were not in at the time of the meeting with Dr. Dean and Dr. Madden.

Exit Interviews were completed with graduates as a pilot program.

The Physics program is preparing a database to use in the assessment program starting in the Fall 2003.

Management

The current initiatives for the College of Management are as follows:

1. Adjunct Faculty Liaison – to ensure graduate expectations for faculty and students are being met, this position was created in the College.
2. Center for Executive and Technical Skill Development – to develop and enhance students' managerial, executive and technical skills essential to their success and the success of their organization. Launch is expected Fall 2003.

Continuing Initiatives for Improving Student Learning Outcomes include:

1. MBA Pre/Post Knowledge Tests – Exams were given in HRM6023, MGT6063, MIS6013, MGT6013, FIN6013, MKT6013, MGT6043, OPM6033, and MGT6053.
2. ICCP Exam – For the MSIS and BSIT students.
3. CIMBA Case Studies.
4. MISO Capstone Pre-Post Knowledge Test.

Future Initiatives for 2003 include the assessment of qualifying exams, comprehensive exams, and dissertations for the doctoral programs. These outcomes won't be seen though until they get to this phase of their program. This will take place in approximately 3 years.