Lawrence Technological University

Assessment Report

2009-2010 Academic Year

University Assessment Committee

Table of Contents

Executive Summary of 2009-2010 Assessment Report

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

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

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

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

The primary focus of the 2009-2010 University Assessment Committee (UAC) was to review the assessment tools and timeline of administration for the University Undergraduate Educational Goals. This year was the 5th year of a five year cycle and several of the goals have not been comprehensively assessed including Goal Group I. Application of Advanced Knowledge (I.1 and I.2), Goal II.4 (mathematics and scientific method), and Group V. Character Education (V.1 and V.2). Specific UAC activities for this year included:

- focusing on Goal Group I through rubric development,
- establishing a sub-committee for determining assessment of character education,
- finalizing and pilot testing a leadership survey instrument, and
- assessing teamwork on a regular cycle.

This report contains the 2009 Assessment Day presentations (which close-the-loop on the previous year assessment activities), and annual reports from programs for the 2009-2010 academic year (which describe assessment activities for the academic year and assessment plans for the next academic year).

Assessment Committee Membership Rules

Membership Composition

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

The Assessment Committee is made up of the following individuals:

The Director of Assessment (Chair, faculty representative)
One faculty representative from each academic department.
The Provost, *ex officio* and non-voting
The Associate Provost, *ex officio* and non-voting
The Director of Institutional Research and Academic Planning, *ex officio* and non-voting
The Director of eLearning Services, *ex officio* and non-voting
One representative from any other academic program as the Dean of the appropriate College and/or Provost direct.

Chairperson

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

Committee Members

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

Rules of Order

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

UAC Membership 2009-2010 Academic Year

Chair and Director of Assessment	Donald Carpenter
College of Architecture and Design	
Architecture	Ashraf Ragheb
Art and Design	Keith Nagara
College of Arts and Sciences	
Humanities, Social Sciences, and Communication	Jason Barrett
Mathematics and Computer Science	Jonathon Brewster
Natural Sciences	Nicole Villeneuve
College of Engineering	
Civil Engineering	John Tocco
Electrical and Computer Engineering	Rakan Chabaan
Engineering Technology	William White
Mechanical Engineering	Vernon Fernandez
College of Management	
DBA, DMIT, MBA, MSIS, MSOM, BSIT	Tim Landon
Ex-Officio Members	
Associate Provost	Stephen Howell
Coordinator, Institutional Research and Assessment	Mary Thomas
eLearning Services	Diane Cairns

UAC Membership 2009-2010 Service and Rotation

Member		**Years Served**	**Year Started**	**Year Ends**
Chair and Director of Assessment	Donald Carpenter	1	2009-2010	2011-2012
College of Architecture and Design				
Architecture	Ashraf Ragheb	1	2009-2010	2011-2012
Art and Design	Keith Nagara	1	2009-2010	2011-2012
College of Arts and Sciences				
HSSC	Jason Barrett	2	2008-2009	2012-2013
Mathematics and Computer Science	Jon Brewster	3	2007-2008	2009-2010
Natural Sciences	Nicole Villeneuve	3	2008-2009	2010-2011
College of Engineering				
Civil Engineering	John Tocco	2	2008-2009	2010-2011
Electrical and Computer Engineering	Rakan Chabaan	3	2007-2008	2009-2010
Engineering Technology	William White	6	2004-2005	2009-2010
Mechanical Engineering	Vernon Fernandez	2	2008-2009	2011-2012
College of Management				
BSBA, BSIT, MBA, MSIT	Tim Landon	2	2008-2009	2011-2012

University Undergraduate Educational Goals
(September 2007)

Lawrence Technological University is a student-centered, comprehensive**,** teaching university with focused, technologically oriented professional programs. The vision of the University is to be the region's preeminent private university producing leaders with an entrepreneurial spirit and global view, by 2015.

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

Lawrence Tech's values are:

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

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

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

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

****

Goal Group I – Application of Advanced Knowledge
Undergraduates will participate in one of the major programs offered by the University, all of which include a capstone experience. This goal is supported by the following outcomes:

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

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

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

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

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

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

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

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

Goal Group III – Leadership

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

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

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

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

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

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

Goal Group IV – Teamwork

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

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

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

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

Goal Group V – Character Education

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

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

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

2009-2010 Undergraduate Assessment Plan

Group I. Application of Advanced Knowledge	**Assessment Strategy**	**Responsible Academic Unit**	**Level**	**Timeline**
I. 1. Graduates will demonstrate knowledge, and expertise in applying this knowledge, in their professional fields	To be decided and developed by Departments	All programs	4th yr	Update plan 2008 – 2009
I. 2. Graduates will demonstrate effective use of technology and the ability to apply it in their professional fields	To be decided and developed by Departments	All programs	4th yr	Update plan 2008 - 2009
Group II. Foundation Cognitive Skills and Abilities	**Assessment Strategy**	**Responsible Academic Unit**	**Level**	**Timeline**
II. 1. Graduates will be literate and skilled in written and oral communication including communication appropriate to their professional fields	Assessment of writing in first and second year core courses	Humanities Department	1st yr/ 2nd yr	Ongoing
	Writing Proficiency Exam	Multi-disciplinary committee	3rd yr	Pull sample in focus years
	Observation of oral presentations	Multi-disciplinary committee	3rd / 4th yr	Every 5 yr, from sp03
II. 2. Graduates will be aware of the diverse basis of our culture and will demonstrate both breadth and depth in the arts and the humanities	Place topics relevant to this outcome on LLT and SSC junior/senior elective writing assignments	HSSC	3rd / 4th yr	Develop plan 2009 - 2010; implement Fall 2010
II. 3. Graduates will be aware of the foundations and development of American society	Place topics relevant to this outcome on LLT and SSC junior/senior elective writing assignments	HSSC	3rd / 4th yr	Develop plan 2009 – 2010 ; Implement Fall 2010
II. 4. Graduates will demonstrate competence in mathematics and in the use of the scientific method and laboratory technique.	To be decided and developed by Departments of MCS and NS	MCS and NS	2nd yr	Develop plan 2009 - 2010; Implement Fall 2010
II. 5. Graduates will demonstrate creativity and critical thinking, as well as analytical and problem solving skills consistent with the technological focus of the University	ACT-CAAP Test	UAC	Fr & Sr	Surveyed in 2007; Again in 2011.

Group III. Leadership	**Assessment Strategy:**	**Responsible Academic Unit**	**Level**	**Timeline**
III. 1. Graduates will have had experiences that promote a high level of professionalism and integrity, responsible decision making, confidence in approaching professional opportunities, and pride in their abilities and professional self-presentation.	Leadership Survey, Focus Groups, & Portfolios	Leadership Program & LCIC	All	Phased in 2009 – 2012
III. 2. Graduates will have had experiences that promote the understanding of themselves and others, sensitivity to other cultures in the context of globalization, and interpersonal skills.	Leadership Survey, Focus Groups, & Portfolios	Leadership Program & LCIC	All	Phased in 2009 – 2012
III. 3. Graduates will have had experiences that promote the ability to analyze unfamiliar situations, assess risk, and formulate plans of action.	Leadership Survey	Leadership Program & LCIC	All	Phased in 2009 – 2012
III. 4. Graduates will be aware of the importance of lifelong learning in their profession.	Leadership Survey	Leadership Program & LCIC	All	Phased in 2009 – 2012
III. 5. Graduates will have had experiences that promote civic responsibility and a global and societal perspective of contemporary professional life.	Leadership Survey, Focus Groups, & Portfolios	Leadership Program & LCIC	All	Phased in 2009 – 2012

Group IV. Teamwork	**Assessment Strategy:**	**Responsible Academic Unit**	**Level**	**Timeline**
IV. 1. Graduates will have had team experiences in which roles and responsibilities are defined and the team process and their team's progress is monitored.	Teamwork survey Develop a plan of action based on baseline assessment of teamwork	UAC	All	Spring 2010 Fall 2011
IV. 2. Graduates will have had team experiences in which they focus on a common goal, take responsibility for their own contributions as well as for the team's product, and evaluate one another's contribution to the team.	***Same as for IV. 1.***	***Same as for IV. 1.***	***All***	***Same as for IV. 1.***
IV. 3. Graduates will have had team experiences in which they practice making decisions, reaching consensus, and resolving conflicts.	***Same as for IV. 1.***	***Same as for IV. 1.***	***All***	***Same as for IV. 1.***
Group V. Character Education	**Assessment Strategy:**	**Responsible Academic Unit**	**Level**	**Timeline**
V. 1. Graduates will have had opportunities to learn the value of contributing to their community and to society	Leadership Survey and Focus Groups	***(Part of Leadership Program proposal)*** Leadership Program University Assessment Committee	All	***(Part of Leadership Program Assessment)***
V. 2. Graduates will have had opportunities to develop personal values as the foundation of integrity and professional ethics	Character Education Survey	Leadership Program UAC	All	????

Assessment Day 2009
Friday, September 18, 2009
Lear Auditorium – T429
AGENDA

Continental Breakfast		8:30 – 9:00
Welcome	*Dr. Maria Vaz, Provost*	9:00 – 9:10
Introduction	*Dr. Maria Vaz, Provost* *Dr. Donald Carpenter, Director of Assessment*	9:10 – 9:20
Program	**Assessment Updates** *Dr. Donald Carpenter* *Dr. Jason Barrett* *Dr. Andrew Gerhart*	9:20 – 9:40
	Oral Presentation Assessment Results *Dr. Walter Dean*	9:40 – 10:00
	e-Learning Services Support for Assessment *Ms. Diane Cairns*	10:00 – 10:20
	Break	10:20 – 10:40
	Assessment Accreditation, and the NCA Visit *Dr. Steve Howell*	10:40 – 11:00
	Keynote Address – Rubrics & Assessment *Dr. Donald Sanderson*	11:00-11:30
Lunch - Cafeteria		11:30 – 12:30
Workshop (Cafeteria) – How to Develop a Rubric that Works for You *Dr. Donald Sanderson*		12:30 – 3:00
Departmental Meetings		3:00-4:00
Adjournment		

WELCOME!

Lawrence Tech Assessment Day 2009

Assessment Committee (2009 – 2010)

- ***College of Arts and Science***
  - Jon Brewster, Mathematics and Computer Science
  - Nicole Villeneuve, Natural Sciences
  - Jason Barrett, Humanities, Social Sciences and Communication
- ***College of Engineering***
  - John Tocco, Civil Engineering
  - Rakan Chabann, Electrical and Computer Engineering
  - William White, Engineering Technology
  - Vernon Fernandez, Mechanical Engineering
- ***College of Architecture & Design***
  - Ashraf Ragheb, Architecture
  - Keith Nagara, Art & Design
- ***College of Management***
  - TimLandon
- ***Ex-Officio Members***
  - Steve, Howell, Associate Provost
  - Mary Thomas, Institutional Research and Assessment
  - Diane Cairns, eLearning Services
- **Walter Dean, Chair Emeritus**

AM Schedule of Events

- **9:00 – 9:10 Welcome**
  Maria Vaz, Provost 9:00 – 9:10
- **9:10 – 9:20 Introductions**
  Maria Vaz, Provost & Donald Carpenter, Director of Assessment
- **9:20 – 9:40 Assessment Updates**
  Donald Carpenter
- **9:40 – 10:00 Oral Presentation Assessment Results**
  Walter Dean
- **10:00 – 10:20 E-Learning Services Support for Assessment**
  Diane Cairns
- **10:20 – 10:40 Break**
- **10:40 – 11:00 Assessment, Accreditation, and the NCA Visit**
  Steve Howell
- **11:00 – 11:30 Keynote Address - Rubrics & Assessment**
  Dr. Donald Sanderson

Assessment Updates

- Five Educational Goal Groups for the University
  - Application of Advanced Knowledge
  - Fundamental Cognitive Skills and Abilities
  - Leadership
  - Teamwork
  - Character Education
- Assessed on a Rotating Basis

PM Schedule of Events

- **11:30 – 12:30 Lunch – Cafeteria**
- **12:30 – 3:00 Workshop - How to Develop a Rubric that Works for You**
  Dr. Donald Sanderson
- **3:00 – 4:00 Departmental Meetings**

Writing Across The Curriculum

- Jason Barrett, HSSC Assessment Committee Representative

Assessment of Leadership

- Andrew Gerhart, Chair of the Leadership Curriculum Implementation Committee

Lawrence Tech.

Student Perceptions of Leadership Abilities

Seven statements indicate a downward shift in abilities.

For two of these statements, that is the desired outcome (i.e., it was a negative statement).

For the remaining five statements, the students revealed leadership abilities that they should improve.

Lawrence Tech.

Student Perceptions and the Influence of the Course

Surveys Administered to LDR 2001 Leadership Models and Practices

- Pre and post: Personal view of abilities and motivation
- Assessment of university's leadership goals
- Peer assessment of final project

5 point Likert scale, where 1 indicates completely disagree and 5 indicates completely agree

28 to 45 respondents

Lawrence Tech.

Student Perceptions of Motivation to Lead

At the beginning and end of the course, the students rated 13 statements concerning their motivation to lead.

Eight of the statements indicated an increased motivation to lead.

The remaining five statements showed no statistical change.

Overall, the student motivation ratings were high (closer to 5 than to 1).

Lawrence Tech.

Student Perceptions of Leadership Abilities

Thirty total statements pertaining to leadership ability.

Ten statements indicate an upward shift in abilities from the beginning to the end of the course.

Of those ten, six of the statements indicate an increase in personal confidence/skills, and four indicate better self awareness and areas to improve.

Thirteen statements indicate little to no change in abilities.

Lawrence Tech.

Course Meeting Leadership Education Goals

At the end of the semester, students rated 13 statements concerning the extent to which the course meets the university's leadership education goals.

On a scale of 1 to 5, the thirteen averages ranged from 3.6 to 3.9, but not every goal is a focus of the course.

Lawrence Tech.

Leadership Inventory Peer Assessment

For the pilot offering of the course, students assessed their peers on 20 characteristics of effective leaders. During the third week of the semester, the students average score was 34.3%. On the last week of the semester the students averaged 64.7% for a 30.4% change.

Assessment of Teamwork

- Teamwork was one focal area of University Assessment Committee in 2005 – 2006
  - Focus of 2005 Assessment Day Keynote/Workshop
- Teamwork Evaluation Survey
  - Comprehensive survey was drafted by Walter Dean, Daniel Faoro, and Donald Carpenter based on literature & the university educational goals
  - Pilot testing performed by Student Government
- Survey previously conducted in 2006.

Conclusion

***Leadership Models and Practices* is only a single piece of the overall leadership curriculum, five preliminary conclusions can be drawn:**

1) **Evidence suggests that one credit hour does a sufficient job of providing the student experiences important to their growth as a leader.**
2) **The course raises student self-awareness of strengths and weaknesses.**
3) **The students perceived the course as having some value.**
4) **The students have gained some important awareness of the university's leadership education goals.**
5) **The students see leadership growth in their peers.**

Demographics (2006)

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

Assessment of Leadership 2009-2010

- Steering Committee
  - Andrew Gerhart, Melissa Grunow, Katie Hayes, and Don Carpenter
- Developed leadership survey to be administered annually to students in the curriculum at all levels
  - IRB approval, focus groups, pilot testing, validation, etc.
- Evaluation of Leadership Portfolios using rubrics.

Observations (2006)

- 85% of freshman have had at least one experience
- Most common number of courses with teamwork for seniors is 3 to 5 courses
- Most common methods for team formation is self select or instructor with no explanation
- Not much peer evaluation occurring
- Individual dominance on decision-making is an issue

Observations (2006)

- 50 to 60% of students cite inability to schedule meetings as a negative aspect of teamwork
- 75% of students thought grading of team projects was fair
- 70% of students thought teamwork experiences were positive
- Only ½ of students surveyed engaged in teamwork outside of class.

Lawrence Tech.

Assessment of Teamwork 2009-2010

- Re-administer the survey to students in spring 2010 (need assistance).
- Compare results between 2006 & 2010.
- Establish acceptable metrics and determine course of action based on findings.
- Present at 2010 Assessment Day

Lawrence Tech.

Dr. Donald Sanderson
Lawrence Technological University
September 18, 2009

WHAT ARE RUBRICS AND HOW CAN THEY SAVE YOU TIME AND ENERGY?

What is a Rubric

Stages of Assessment

1. Denial
2. Anger
3. Bargaining
4. Despair
5. Acceptance
6. Adoption
7. Use

Definition

- Red Text
  - Things that are important
  - The attribute you want to analyze to make a decision
- Over 5 million hits on Google
- A method for measuring performance
- Not rocket science

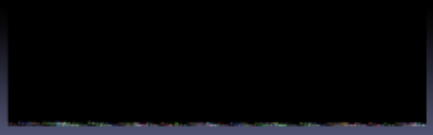
Rubrics: Questions and Answers

- What is a Rubric ?
- How to build a Rubric ?
- Who can use a Rubric ?
  - and how can this save me time ?
- Why is a Rubric needed ?
- Is this the right Rubric ?
- How to build better Rubrics

Part of an assessment program

- Data collection method
- Measures how well a student outcome is being met.
- Gives a "Direct Measure" of performance

A lot like grading an assignment



Educational Outcome

- Rubrics for educational assessment measure a student's performance on an educational outcome
- The outcomes MUST come first
  - You must know what you are measuring before you design the measure

Problem

- Classic problem
- High Calorie vs. High Hunger Level
- Normalize so that things are consistent

Construction

- For each dimension
  - For each metric
    - Describe the performancelevel
- This builds a table

How to build a Rubric

Example

- The **Outcome** being assessed
  - Is this something I should eat?
- The **Dimensions** or **Traits** used to assess this
  - Calories
  - Fat Content
  - Favorite Food
  - Hunger
- **Performance Levels**
  - Exceeds –Meets – Does Not Meet

Do I want to eat this ?

Performance ,Outcome

Levels →	Exceeds	Meets	Does Not Meet
Calories			
Fat Content			
Favorite Food			
Hunger			
Total ???			

tDimensions

Do I want to eat this ?

	Exceeds	Meets	Does Not Meet
Low-Calorie			X
Low-Fat			X
Favorite Food		X	
Hunger			X
Total ???	0	1	3

Problem

- Classic problem
- High Calorie vs. High Hunger Level
- Normalize so that things are consistent

Do I want to eat this ?

	Exceeds	Meets	Does Not Meet
Low-Calorie (15)	15	10	5
Low-Fat (15)	15	10	5
Favorite Food (15)	15	10	5
Hunger (55)	55	26	28
Total 98/100			

Weighting the dimensions

Do I want to eat this ?

	Exceeds	Meets	Does Not Meet
Low-Calorie			
Low-Fat			
Favorite Food			
Hunger			
Total ???			

Do I want to eat this ?

	Exceeds	Meets	Does Not Meet
Low-Calorie	100 or less	101 to 400	401 and above X
Low-Fat	20% or less	21 % to 40%	41% or more X
Favorite Food	Top 10	Good X	Yuck
Hunger	Starving	A Bit	Just Ate X
Total ???	1	2	1

Adding performance descriptors

Do I want to eat this ?

	Exceeds	Meets	Does Not Meet
Low-Calorie (15)	100 or less 15	101 to 400 10	401 and above 5
Low-Fat (15)	20% or less 15	21% to 40% 10	41% or more 5
Favorite Food (15)	Top 10 15	Good 10	Yuck 5
Hunger (55)	Starving 55	A Bit 26	Just Ate 18
Total 38/100	1	2	1

Integrating both

Students

- Sets Criteria
  - "I wish I knew what you wanted"
- Establishes Expectations
  - "This grade isn't fair"
- Can modify behavior
  - "I just didn't think you meant it"

Who can use a Rubric

and how can this save me time ?

Graders

- A well designed rubric can be given to a grader
  - It needs unambiguous performance criteria
- It allows graders to evaluate

Evaluators

- Instructors
  - The rubric CAN be used to set the grade
    - Just not the reverse
- Assessors
  - A rubric applied to student work gives you a direct measure of student performance
    - Some controversy over single evaluator vs. multiple evaluators

Why is a Rubric needed ?

Consistent Measurement

- Multiple Evaluators
- Multiple Evaluation times
- Descriptors of performance become critical in these situations
  - Ask 10 people what meets expectations in terms of a given dimension, you will get at least 5 different answers
- My definition
  - "If the score is in any manner subjective, you need a rubric"

Determine what you are measuring

- The outcome needs to be important to you and your constituents
- The outcome needs to be something you can influence
  - Our students will have high moral standards
  - Our students will be able to identify ethical issues
- The outcome needs to be clearly stated

Rubrics are not Grades

- Excludes "Sanitary Factors"
  - Submission Requirements
  - Time Penalties
- More tightly focused
  - Often an assignment spans multiple learning outcomes
- More broadly focused
  - A rubric may be applied to work done over sections of multiple student submissions

Use or Create

- There are lots of good rubrics available
- If they fit use them
- If they do not fit
  - Adapt
  - Create

Is this the right Rubric ?

The dimensions need to matter

- Gather a team who understand the outcome
- Involve as may constituencies as you can
  - Frequent Instructors
  - Analysts
  - Students
- Take time to consider
- Review

How to Build Better Rubrics

Formative vs. Summative

- What is the reason
  - Final Evaluation
  - Evaluation in process
- Formative tends to have more dimensions
- Summative tends towards holistic approach

Consider the impact

- Make sure you need the rubric
- Make sure each dimension is needed
- Is there a way to make this rubric serve multiple purposes

What can you measure

- Objective and Subjective Outcomes
- Arts
  - Performance, Artwork, Literature
- Sciences
  - Lab Work, Equipment Skills, Concept
- Engineering
  - Concepts, Applications, Capstones

Holistic or Analytical

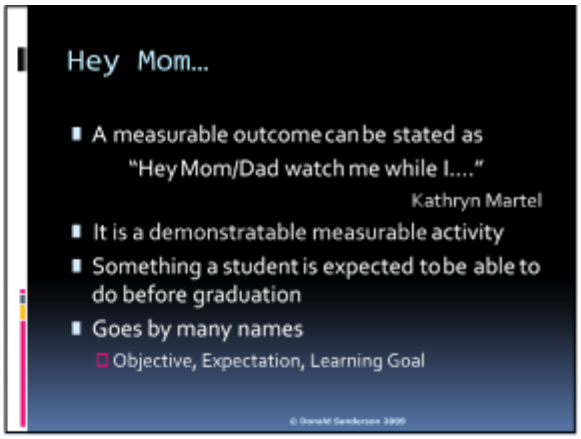
- Holistic
  - Have only a few performance dimensions or traits
  - Have detailed performance levels
- Analytical
  - Have many performance dimensions and sub-dimensions
  - Have simple performance levels

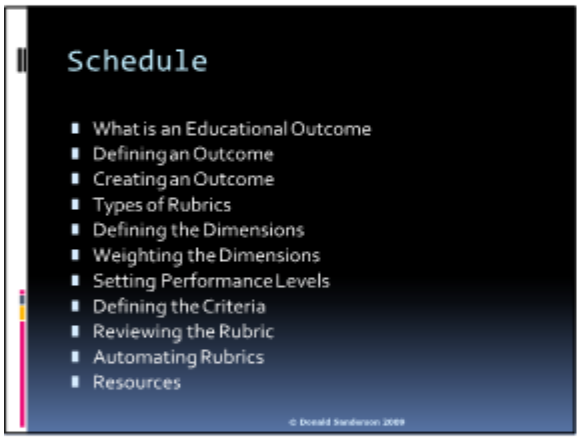
Rubrics myths…

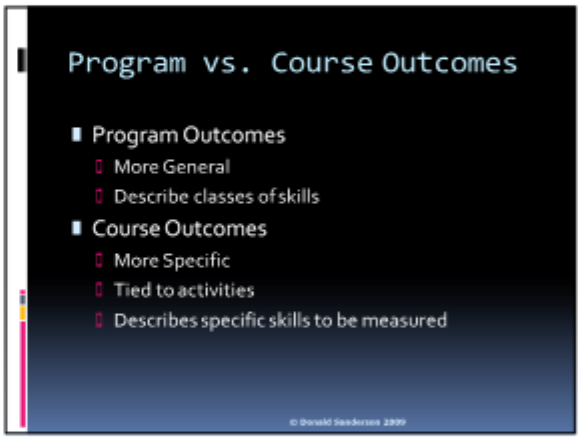
- Its hard to build a rubric for
  - Subjective Issues
  - Technical Issues
  - Issues across curriculums
- I'll have to grade work twice
- It's a pain to summarize all the data

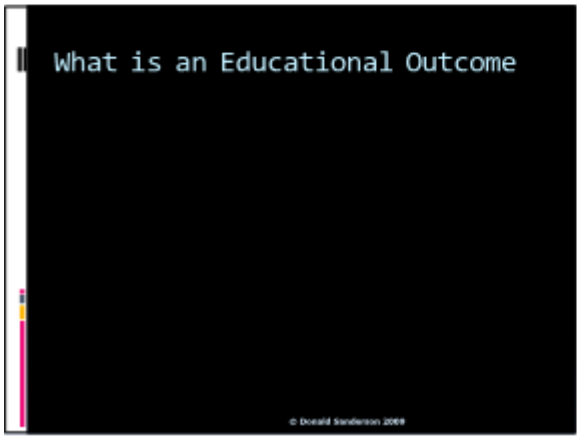

This afternoon we will put
Theory into Practice
Café Lawrence
12:30-3:00
© Donald Sanderson 2009

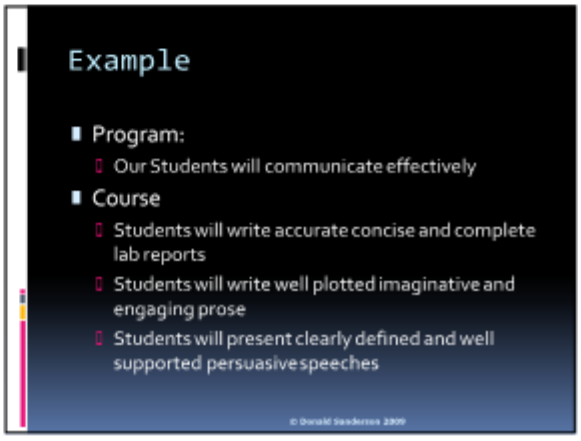

Dr. Donald Sanderson
Lawrence Technological University
September 18, 2009
HOW TO DEVELOP A RUBRIC THAT WORKS FOR YOU
© Donald Sanderson 2009


Hey Mom…
A measurable outcome can be stated as
"Hey Mom/Dad watch me while I…."
Kathryn Martel
It is a demonstratable measurable activity
Something a student is expected to be able to do before graduation
Goes by many names
Objective, Expectation, Learning Goal
© Donald Sanderson 2009


Schedule
What is an Educational Outcome
Defining an Outcome
Creating an Outcome
Types of Rubrics
Defining the Dimensions
Weighting the Dimensions
Setting Performance Levels
Defining the Criteria
Reviewing the Rubric
Automating Rubrics
Resources
© Donald Sanderson 2009


Program vs. Course Outcomes
Program Outcomes
More General
Describe classes of skills
Course Outcomes
More Specific
Tied to activities
Describes specific skills to be measured
© Donald Sanderson 2009


What is an Educational Outcome
© Donald Sanderson 2009


Example
Program:
Our Students will communicate effectively
Course
Students will write accurate concise and complete lab reports
Students will write well plotted imaginative and engaging prose
Students will present clearly defined and well supported persuasive speeches
© Donald Sanderson 2009

Defining an Outcome

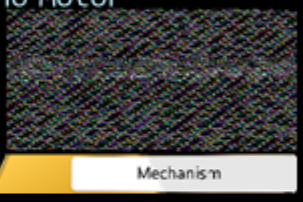
Blooms Taxonomy

- Psychomotor
- Affective
- Cognitive

Course Educational Outcome

- If you have one great !
- If not consider the question:
  - What skills do your students take away from the course?
- Each group should arrive at one outcome they want to measure for this workshop

Blooms Psycho Motor



Physical Skills

Do I Want to Eat This?

Blooms Affective

Attitudes and Perceptions

Blooms Cognitive

Knowledge of facts

Outcomes and modifiers

- Modifiers in the outcome help you later to define performance dimensions
- Some like to build the outcome, then dimensions then retrofit the dimensions into the outcome
- Others add the adjectives to start, and use that to drive the dimension creation
- The first approach is a little easier when you are first starting to create outcomes
- No real difference in results

The Level of your Outcome

- Knowledge
  - Students will be able to **cite** the definition of irony
- Comprehension
  - Students will be able to **rewrite** the definition of irony
- Application
  - Students will be able to **construct** an ironic sentence

Outcomes with modifiers

- Students will be able to write clear complete and concise lab reports
- Students will be able to fully, concisely and in accordance with recognized federal guidelines analyze the ecological impact of proposed urban development

The Level of your Outcome 2

- Analysis
  - Students will be able to **detect** the use of irony in prose
- Synthesis
  - Students will be able to **incorporate** irony in a persuasive essay
- Evaluation
  - Students will be able to **evaluate** the effectiveness of ironic comments in a persuasive essay

Creating an Outcome

It takes a group

- Involve the people who will use the outcome
- Involve people who know assessment
- Involve people who know accreditation
- Examine artifacts from the courses involved
- Roles
  - Moderator / Scribe
  - Expert

For our exercise

- Look over the Blooms Taxonomy verb list and determine an appropriate level for the for your outcome
- Look over the artifacts from the course

Real life

- You will have many educational outcomes for a course
- The outcomes will be at different levels
- Most will be already documented
  - Course Syllabi
  - Curriculum Maps
- Build a list of all known outcomes

For our exercise 2

- Everyone write up a post-it **by yourself** with what you feel are the most important outcomes for the course
- When all are done put them on the table
- Every person gets two votes
- Most votes wins
  - Preserve all the notes, they may help later
- Feel free to combine similar items, or rewrite the winner
- Moderator write the final group outcome at the top of the sheet

Real life 2

- Start with the existing list
  - Identify duplicates and merge them
  - Identify omissions and create outcomes
  - Simplify and normalize the language
- The moderator keeps track and breaks ties

Time management

- It is easy to get bogged down
- Have a moderator to make the final decision
  - Choose moderator carefully
    - No 'axe' to grind
    - Perceived as a moderate by the group
- If live set a time limit
  - Use an Egg Timer

You've got 10 minutes to come up with the outcome for the workshop…

Build or buy

Use Existing
- Does it measure your outcome
- Does it describe everything youthink important
- Is it a standard definition in your discipline
- Does it fit your accrediting body

Build your own
- Do you have the time
- Do you havethe expertise
- Is this specific to your approach
- Is there internal agreement on performance

Distributed meetings

- Have each participant e-mail their outcomes to the moderator
- The moderator categorizes and groups
- Send to all participants
- Then meet live

Holistic or Analytical

- Holistic
  - Have only a few performance dimensionsortraits
  - Have detailed performance levels
- Analytical
  - Have many performance dimensions and sub-dimensions
  - Have simple performance levels

Types of Rubrics

Formative or Summative

- What is the reason
  - Formative: Evaluation inprocess
  - Summative: Final Evaluation
- Formative tends towards moredimensions
- Summative tends towards holistic approach

Defining the Dimensions

Building Dimensions

- What traits would you examine in a student paper todetermine if they have mastered the educational outcome
- What would showthey have not mastered the outcome
- The are often promptedby the modifiers in your outcome
- They have to be either
  - Quantifiable OR
  - Describable

Dimensions

- Theyare the traits you look at to determine how well the outcome has been met
- Theyare the factors you look at when grading
- They may be in some of the post-its you just generated when trying to build your outcome

Procedure part 1

- Each person write 6-8 dimensions one per post-it
- Do this by yourself
- No talking
- Don't worry about correct phrasingjust get the ideas down
- Put your pen/pencil down when done

Do I want to eat this ?

Low-Calorie (15)	0051	101	0 e
Low-Fat (15)	2 s 1	1	r v
Favorite Food (15)	5	o	k
Hunger (55)	ri	i	s l 1
Total 38/100			

t Dimensions

Procedure part 2

- Still no talking by anyone but theModerator
- Moderator asksone volunteer toplace their first dimension on the sheet
- Anyone else in the group who has a dimension they think is similar should place it on the sheet by this topic
- Continue till all this volunteer's ideas have been posted
- Continue for all other people in thegroup

Procedure part 3

- Now start talking
- For each group of post-its build a common dimension statement
- If you realize you've missed a dimension feel free to add it in
- If the dimensions indicate it, you can refine your outcome
- The moderator then writes up the final version of the outcome, and each dimension on the worksheet

Do I want to eat this ?

You've got 30 minutes to build your dimensions

Weighting the Dimensions

- Group Consensus
- Which factors are most important to mastering the outcome
- Look at old grading guides as source material
- Usually best if they sum to 100

Weighting the Dimensions

Setting Performance Levels

Levels

- Similar to a Likert scale
  - How well has this students demonstrated mastery of a specific dimension
- You want an odd number
- Three or five are most common
  - **Does Not Meet – Meets – Exceeds**
  - Novice - Developing -Mastery
  - Poor – Fair - Average - Good – Excellent
- For today lets stick to 3 levels
- May also include Not-Applicable

Defining the Criteria

Do I want to eat this ?

Performance
L

Writing Criteria

- For each dimension write a description of student work in each of your performance levels
- Measurable
- Unambiguous
- For objective dimensions give values
- For subjective
  - Comparisons to known standards
  - Descriptions and counts of allowable defects

Take 10 minutes to define your levels and then take a break

Do I want to eat this ?

i	100 or less 15	101 to 400 10	401 and above 5
	20% or less 15	21% to 40% 10	41% or more 5
	Top 10 15	Good 10	Yuck 5
	Starving 55	A Bit 26	Just Ate 18
	1	2	1

Criteriat

Well defined un-ambiguous criteria

- Lets you use the rubric with a grader for grading
- Gives consistent results
  - Across evaluators
  - Across evaluations
- Makes accreditors happy

Criteria: Description

- Dimension: The student walks well
  - Does Not Meet — Uncoordinated
  - Meets — Coordinated
  - Exceeds — Superior Skills
  - Uncoordinated: There are frequent falls, or grasps for support, speed is slow, resorts to crawling during the attempt. Proper posture is rarely achieved.
  - Coordinated: There are no falls or grasps for support, speed is average for the group, no crawling at all. Proper posture is maintained most of the time.
  - Superior Skills There are no falls or grasps for support, speed exceeds the group average, and proper posture is maintained at all times. Chewing of gum occurs simultaneously.

Criteria: Quantification

- Dimension: The document is grammatically correct
  - Does Not Meet — Grammar ignored
  - Meets — Grammar mostly correct
  - Exceeds — Grammar is perfect
  - Does Not Meet — 5 or more errors per page
  - Meets — 2-4 errors per page
  - Exceeds — at most 1 error per page

Procedure

- Best done by discussions in the group
- You will have a limited amount of time so set a time limit per dimension
- Moderator tracks time and writes up the final versions

Criteria: Analogy

- Dimension: The plot is well structured
  - Does Not Meet — Not Structured
  - Meets — Adequately Structures
  - Exceeds — Well Structured
  - Does Not Meet — Not Structured (Marx Brothers or Monty Python)
  - Meets — Structured (Episodic Television)
  - Exceeds — Well Structured (Hitchcock's Citizen Kane)

You have 45 minutes to define your dimensions and complete the rubric worksheet

Reviewing the Rubric

Automate

- The less busywork required, the more effective your rubric
- Use off the shelf software
- Error checking, summation and graphing can be done automatically

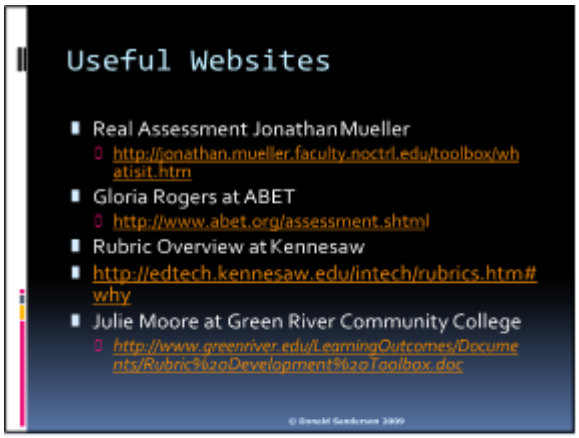
Review and revise

- Review the rubric yourself
  - Cohesion between the dimensions and the outcome
  - Omissions
  - Duplication
  - Run the rubric on some old student work
- Have the rubric reviewed by other instructors of the course
- Have the rubric reviewed by instructors of courses that follow this course
- Have the rubric reviewed by experts on your advisory board

Self reporting rubrics

Automating Rubrics

Resources


Useful Websites
Real Assessment Jonathan Mueller
http://jonathan.mueller.faculty.noctrl.edu/toolbox/whatisit.htm
Gloria Rogers at ABET
http://www.abet.org/assessment.shtml
Rubric Overview at Kennesaw
http://edtech.kennesaw.edu/intech/rubrics.htm#why
Julie Moore at Green River Community College
http://www.greenriver.edu/LearningOutcomes/Documents/Rubric%20Development%20Toolbox.doc
© Donald Sanderson 2009


Discussion
Thanks for your time today, I know how valuable it is.
© Donald Sanderson 2009

AC 2010-1119: DEVELOPMENT OF A LEADERSHIP AND ENTREPRENEURSHIP SKILLS ASSESSMENT INSTRUMENT

Andrew Gerhart, Lawrence Technological University
Andrew Gerhart is an Associate Professor of Mechanical Engineering at Lawrence Technological University. He is actively involved in ASEE, the American Society of Mechanical Engineers, and the Engineering Society of Detroit. He serves as Faculty Advisor for the American Institute of Aeronautics and Astronautics Student Chapter at LTU, and serves as chair for the LTU Leadership Curriculum Committee.

Donald Carpenter, Lawrence Technological University
Donald Carpenter is an Associate Professor of Civil Engineering at Lawrence Technological University. He is actively involved in ASEE, is a Kern Fellow for Entrepreneurial Education, and serves as Director of the Center for Teaching and Learning at LTU. His research interests involve academic integrity, assessment tools, and stream restoration.

Melissa Grunow, Lawrence Technological University
Melissa Grunow is the Coordinator for the Leadership Curriculum at Lawrence Technological University and is an instructor in the Department of Humanities. She has eleven years of experience working with student organizations and teaching undergraduates, including identifying needs and developing new initiatives and curricular and co-curricular programs. Her research interests include activist pedagogies and empowering students through creative teaching methods.

Katie Hayes, Lawrence Technological University
Katie Hayes is the Entrepreneurial/Leadership Assistant Coordinator. She oversees the junior and senior year requirements, and is an instructor for the Department of Humanities. Additionally, she assists in carrying out the initiatives outlined in the Kern Grant, which aims to inspire an entrepreneurial mindset in undergraduate engineering students throughout the educational experience.

Development of a Leadership and Entrepreneurship Skills Assessment Instrument

Abstract

Lawrence Technological University has implemented a required four year leadership curriculum for all undergraduate students. Because of the consequential overlap of leadership and entrepreneurial skills, the curriculum also addresses many aspects of the "entrepreneurial mindset" which includes communication, teamwork, ethical decision-making, opportunity recognition, persistence, creativity, innovation, creative problem solving, and critical thinking.

Individual components of the curriculum will be assessed as well as the curriculum as a whole. As one part of the assessment, a Leadership Self-Perception Assessment Instrument was developed. The instrument will aid in answering the following research questions:

- How do students perceive their own leadership traits and skills?
- Are students' self-perceptions demonstrating growth in confidence in their leadership abilities because of the experiences and education from each component of the curriculum?
- What impact do all the courses in the four-year leadership curriculum have on this perception?
- What modifications are necessary to the curriculum to adequately address the student learning outcomes?

As implied by these research questions, the instrument will be used for both formative and summative assessment, as well as a longitudinal study of the leadership growth of the students.

Instrument development included conducting a focus group for validation, a test-retest to ensure temporal stability and internal consistency, and pilot testing in the second year component Leadership Models and Practices course. The instrument was administered at the beginning and end of the semester to determine the shift in perception of their leadership/entrepreneurial skills.

1. Introduction

Entrepreneurship

Lawrence Technological University (LTU) has offered engineering students entrepreneurial education programs for many years. Recognizing that graduates entering industry will require business and entrepreneurial skills, the College of Engineering developed an entrepreneurial certificate program and founded the Lear Entrepreneurial Center. The entrepreneurial certificate program develops student skills in communication and business components in the engineering profession and includes a multi-disciplinary capstone design experience for which teams are eligible for student venture grants administered by the institution. Several multi-year grants have strengthened the program through workshops, keynote speakers, faculty curriculum awards, student venture grants, and faculty incentives to work with industry sponsored student teams.

Specifically, the College of Engineering received an invitation to participate as part of a larger initiative to develop the Kern Entrepreneurship Education Network (KEEN). The invitation also provided funding to develop and integrate entrepreneurial (and leadership) education across the curriculum.

The goal of KEEN is to make entrepreneurship education opportunities widely available at institutions of higher learning, and to instill an action-oriented entrepreneurial mindset in engineering, science, and

technical undergraduates. The network is limited to private institutions with ABET accredited engineering programs and is by invitation only. As of January 2010, KEEN has grown to include twenty institutions across the U.S. The KEEN program provides access to vital resources for building quality entrepreneurship education programs that engage engineering and technical students including grants, faculty fellowships, capacity building workshops, networking opportunities, and resources. At Lawrence Tech, the grant provided the funding to integrate the existing entrepreneurial programs into a new innovative interdisciplinary program focused on developing the "entrepreneurial mindset" on campus. The skills associated with the entrepreneurial mindset are communication, teamwork, leadership, ethics and ethical decision-making, opportunity recognition, persistence, creativity, innovation, tolerance for ambiguity, risk analysis, creative problem solving, critical thinking, and business skills (including marketing, financial analysis, and strategic planning).[1, 2]

Leadership

A leadership education program was initiated at Lawrence Tech in 2007 based on assessment and program evaluation. First, a survey of employers of Lawrence Tech graduates indicated that employers were very satisfied with the ability of the graduates to "hit the ground running." The new employees had the skills to start directly into their duties with very little to no training or transition period from the academic world to the industrial world. Likely this is due in large part because the faculty and staff at Lawrence Tech seriously embrace the school motto, "Theory and Practice," and incorporate many real world and hands-on activities into the student studies.

Therefore employers have been very happy with Lawrence Tech graduates. On the other hand, the employers indicated that graduates do not often advance into management and leadership positions, but rather stay at the entry-level operations position. Second, Lawrence Tech administration noted the shift in the global economy and that students were looking for added value beyond a traditional education. Finally, with the entrepreneurial program (as related above) already in place, it was noted that the skills associated with the entrepreneurial mindset have a substantial overlap with the skills necessary for effective leaders.

In response, Lawrence Tech set the vision to develop and integrate a leadership education and development curriculum into every undergraduate degree program offered. This curriculum would be required by all undergraduate students, and at the time of its initial development was the only required leadership curriculum at a university (not counting the military academies). There are universities that offer an optional leadership development program to undergraduates, but none that was required by all undergraduates.

Lawrence Tech's leadership education goals are presented below. These are based on the university's approach to general education requirements for undergraduate students.

- Graduates will have had experiences that promote a high level of professionalism and integrity, responsible decision making, confidence in approaching opportunities, and pride in their abilities;
- Graduates will have had experiences that promote the understanding of themselves and others, sensitivity to other cultures in the context of globalization, and interpersonal skills;
- Graduates will have had experiences that promote the ability to analyze unfamiliar situations, assess risk, and formulate plans of action;
- Graduates will have been made aware of the importance of lifelong learning; and,
- Graduates will have had experiences that promote a global and societal perspective.

Lawrence Tech's student population is a thorough mix of traditional students, non-traditional students, part-time students, full-time students, working full-time students, and working part- time students. Therefore the idea of integrating a leadership curriculum into a variety of degree programs with a diverse student-base has been likened to the idea of trying to rewire a 747…while it is in flight! Attempting to integrate the curriculum as smoothly as possible, the four pieces of the curriculum (freshman-year component, sophomore-year component, etc.) were integrated one year at a time. At the writing of this paper, the freshman and sophomore components are firmly in place, the junior year component had just been integrated, and the senior year component is being integrated (i.e., piloted). In short, the first two years of the curriculum introduces the student to the foundations of leadership and allows for some "basic" training with some practice. The final two years of the curriculum are heavily experiential where the student will put to practice the skill sets learned during the first two years. In addition, the student can choose from a multitude of experiences that tailor-fit his/her strengths, interests, and skills. The intention is not to produce CEOs or presidents, but is to give each student the skills and confidence to use leadership in their everyday lives, and hopefully allow them to advance within their discipline.

The leadership model Lawrence Tech focuses upon is the Relational Model of Leadership.[3] In essence, it states that regardless of personality traits an individual can access leadership skills and take purposeful action to create positive, sustainable change. The model is comprised of five key elements: purposeful, process-oriented, inclusive, empowering, and ethical. Data from many studies "supported the value of those five elements, demonstrated how they connect in a developmental theory", and support focusing on this model for post-secondary education leadership development.[3, 4, 5]

The sophomore-year component of the curriculum (a course titled LDR 2001 Leadership Models and Practices) and its preliminary assessment was presented in an earlier paper.[2] The full curriculum and its formative and summative assessment, as well as a longitudinal study of the leadership growth of the students will be presented in future papers. This paper will focus on the initial development of a Leadership Self-Perception Assessment Instrument and a pilot investigation in the sophomore Leadership Models and Practices course.

2. Existing Leadership Assessment Instruments

To assess the self-perception of students during and after the leadership curriculum, Lawrence Tech seeks a self-administered leadership inventory instrument that will focus on the Relational Model of Leadership and the Lawrence Tech leadership education goals. In addition, because of class time constraints and the attention span of college students, an instrument is sought that is not lengthy and on the order of 30 to 40 questions/responses. Several instruments are available, and were examined to determine if they met these criteria.

The Leadership Skills Inventory – Karnes[6, 7] measures an individual's leadership abilities. For this instrument, nine domains are used to "assess strengths and weaknesses related to leadership." Participants "answer a series of competency statements and then several items using [a] 4-point scale" ranging from "Almost Always" to "Almost Never." The instrument is self- scored. Unfortunately, it is very lengthy and requires approximately 45 minutes to complete.[8] In addition, "Karnes's test manual data for validity could be more extensive to support [whether] the Leadership Skills Inventory does measure leadership skills. Scores for reliability are moderate to good," and over a specified time period of 4 weeks, the test-retest reliability was 0.49 and under in one of the samples. However, no standard error of measurement was reported in the

manual. "The construct and concurrent validity was also absent,"[8] although Edmunds[9] has made some progress with validation.

The Leadership Skills Inventory – Anderson[10, 11] is designed for leaders to assess their own abilities in relation to a leadership model created by the author. "Anderson's model is based off of [four] dimensions: Self-Management Skills, Interpersonal Communication Skills, Consulting Skills for Developing Groups and Organizations, and Versatility Skills." Participants respond to a 56-item self-assessment using a 10 point scale. Responses range from "this skill is new to me" to "I can perform the skill well. I can teach others, too."[12] This instrument appears to focus on the corporate world or a business model of leadership and management. Many of the dimensions may be considered more managerial in nature as opposed to leadership oriented. Therefore this instrument does not meet the needs of assessing college-level leadership studies and development.

The Leadership Practices Inventory (LPI)[13] uses a 10-point Likert response scale in a 30 item questionnaire containing five subscales for each of "The Five Practices of Exemplary Leadership" – challenging, inspiring, enabling, modeling, and encouraging. "Leaders complete the Leadership Practices Inventory-Self, rating themselves on the frequency with which they think they engage in each of the thirty behaviors."[14] This particular instrument is intended for those that follow Kouzes' and Posner's Leadership Challenge program.[15] The Lawrence Tech curriculum, on the other hand, emphasizes the Relational Model of Leadership. While there are some similarities between these leadership models, the LPI was not deemed a fit for the leadership model we use.

Related to the LPI is the Student Leadership Practices Inventory.[16] This inventory is for those who follow the Student Version of the Leadership Challenge.[17] In addition, this instrument is best suited for students that already hold a leadership position/title (such as within a student organization). Lawrence Tech administered this survey a few years ago to a sample of undergraduates across disciplines. Unfortunately, the results were fairly meaningless for our investigation, and it was not deemed suitable for assessing individual leadership style (or using leadership in everyday life) outside of a formal leadership position. In other words, the inventory will provide some measure, for example, for a student government president to become better at his position, but it does not provide for measuring more general attributes desired by the Lawrence Tech Leadership Curriculum.

The Leadership Skills Profile[18] "identifies which individuals have the best leadership qualities." Due to the customizable format, each organization can use this model for their specific interest. "Participants are asked to respond to 352 items using a 5-point scale ('Strongly Disagree' to 'Strongly Agree'). Approximately 40 minutes is necessary for completion"[19] – to lengthy for assessing the students' perception. "The Leadership Skills Profile uses three other instruments as its basis – Jackson Personality Inventory-Revised, Personality Research Form, and the Survey of Work Styles. Each of the three instruments is well-established showing convergent and discriminate validity." However, the author does not "provide data showing reliability," so research is "needed to support that the instrument is both reliable and valid."[19] In addition, it is considered best applied as "a pre-hire assessment for selection and placement of leadership applicants and high potentials," to determine "promotability of managers and executives," or as "a foundation for managerial and executive development and coaching."[18] The instrument appears best suited for assessing potential of positional leaders (e.g., CEOs or presidents).

The Alleman Leadership Development Questionnaire[20] measures mentoring activity between individuals in an organization or work unit. It is best suited to leadership in business.

The Campbell Leadership Descriptor is a self-assessment "designed to help individuals identify characteristics for successful leadership, recognize their strengths and identify areas for improvement."[21] While it focuses on many areas pertinent to the Relational Model of Leadership (e.g., personal style, multi-cultural awareness) and entrepreneurialism, it also focuses on management and relates better to business leadership.

The Socially Responsible Leadership Scale[22] measures the Social Change Model of Leadership. While that model and the Relational Model of Leadership do have much in common, they also have important differences.[3] In addition, the instrument is lengthy with 114 items. The revised version is also lengthy with 68 items[23] and has been tested for reliability and validation. Because this instrument has eight stages which can be used successfully piecemeal, some sections/stages of this instrument may be useful in informing the assessment of Lawrence Tech's leadership curriculum.

Considering that these existing leadership self-assessment instruments do not meet our needs, Lawrence Tech has set forth to create an instrument that will measure college-level student growth in leadership traits within the Relational Model of Leadership, as well as assessing the objectives of the curriculum and whether it is meeting the needs of the students.The Leadership Models and Practices Course

Lawrence Tech's Leadership Self-Perception Assessment Instrument is intended for use throughout each component of the leadership curriculum (and its related future education programs). The instrument is being piloted in the sophomore component Leadership Models and Practices course. Details of the course are given in a 2009 ASEE paper,[2] but a brief overview will be given here to allow better interpretation of the development and pilot use of the new assessment instrument presented in subsequent sections of this paper.

The Leadership Models and Practices course is a one credit-hour course offered in a traditional semester style format. It is considered the flagship course for the entire curriculum where students really begin to envision leadership style and build upon their leadership skills. Since many assignments and exercises take place during class-time, the course is allotted two classroom hours each week. This additional hour also gives students the opportunity to meet with their groups on team-based projects.

To develop the course, it was first piloted with a small enrollment of sophomore through senior- level students. This allowed the instructor/course developer to administer the course material to some mature/advanced students who could better handle the "testing" period and give more informed comments and criticism of the course. The seniors, in particular, were soon graduating and did not have any subsequent courses, so their critical comments were made without feeling that they would be held against them in future courses. The course was revised based on the pilot trial and is now required for all sophomore-level undergraduates. As of Spring 2010, the course has been taught to 340 students in 20 sections over five semesters.

The objectives are that upon completion of the course, a student will be able to:
1. expand his/her understanding of leadership concepts that were introduced in the freshman component of the leadership curriculum (called University Seminar).
2. identify and develop their personal leadership philosophy and approach using written self-reflection and peer assessment.
3. be able to work in teams and use creative problem-solving to develop a project for the purpose of creating positive and sustainable change.
4. be introduced to the concepts of leadership beyond their academic studies (whether professional or

personal), including entrepreneurship and intrapreneurship.

The primary course topics include:

- History of leadership theories
- Currently practiced leadership models (*e.g.*, relational, shared, situational, etc.)
- Individual responsibility and ethics
- Diversity and globalization
- Team building, working in groups, and inclusive practices
- Creativity and problem solving
- Organizational leadership
- Entrepreneurship and intrapreneurshipThe required student texts for the course are *Exploring Leadership – For College Students Who Want to Make a Difference*, 2nd Ed. by Komives, Lucas, and McMahon[3], and *You Don't Need a Title to Be a Leader* by M. Sanborn.[24]

Various teaching and learning strategies are implemented to reach the course objectives. While there are some classroom lectures, a good portion of the classroom instruction is completed through games and hands-on activities that were developed and modified to align with the learning objectives and content for the assigned reading. The activities are interactive, engaging, and provide an opportunity for discussion of the topic for that week. In addition, students complete required assignments such as weekly reading and reflection journals, in-class experiential activities, interview with a leader, midterm and final projects, and peer and self assessments. Finally, multiple sections of the course require the use of multiple instructors.

Therefore, for consistency, a training workshop, facilitated by the course developer and leadership curriculum coordinator, is required for all instructors, new and returning. Each instructor is given a course materials guidebook/instruction manual.

3. Initial Development of the Instrument

The instrument being developed is called the Leadership Self-Perception Assessment. In its original form, it consisted of 30 statements (see Appendix A), but after a focus group study, it was revised to contain 31 statements (one deleted and two added, see Appendix B). In addition, the students answer seven demographics questions. The instrument asks students to respond to the statements on a 5-point Likert Scale in which they examine how they perceive themselves in thinking and behavior pertaining to the leadership/entrepreneurial skills that are introduced and practiced in the leadership curriculum. For that reason, the statements are worded in first-person so that students respond in regards to their *perceptions* of themselves as leaders rather than their understanding what leadership "is" or "is not." While some students take as long as 15 minutes to complete the survey, it is estimated that the average time for completion is 8 minutes.

The statements were adapted from the Council for the Advancement of Standards in Higher Education ("CAS") Self-Assessment Guide for Student Leadership Programs.[25] The CAS Self- Assessment is intended for the program administrators to self-assess the program/curriculum and is not for a participant (i.e., student) to self-assess leadership skills. Therefore, the statements for the Leadership Self-Perception Assessment needed to be significantly modified from the CAS to allow for student self-assessment. In Part 2 of the CAS guide (titled "Program"), a table is given for "Relevant, Desirable Student Learning and Development Outcomes" with examples given of "evidence of achievement." It is

from this table that the instrument's statements were developed, and only those examples of "evidence of achievement" which applied to the Lawrence Tech leadership education goals (see Section 1) and which reflected the skills important to the Relational Model of Leadership were used. It should be noted that the aforementioned CAS table is divided into 15 learning/development outcomes. Of those 15, ten were used for the instrument (resulting in 31 statements). Finally, the Lawrence Tech leadership program administrators anticipate using the CAS Self-Assessment Guide for Student Leadership Programs when reviewing their program/curriculum. Therefore a benefit of using the CAS to create the Leadership Self-Perception Instrument will be the ability to correlate program administrators' assessment to student perception assessments.

After developing the statements, many of them were arranged in a particular order so that a particular response would not be influenced by an earlier one. For this reason, the instrument is administered electronically in such a manner that each statement is given individually; once a response is submitted, the student cannot go back and change it.

The instrument is intended to aid in answering the following research questions:

- How do students perceive their own leadership traits and skills?
- Are students' self-perceptions demonstrating growth in confidence in their leadership abilities because of the experiences and education from each component of the curriculum?
- What impact do all the courses in the four-year leadership curriculum have on this perception?
- What modifications are necessary to the curriculum to adequately address the student learning outcomes?

As implied by these research questions, the instrument will be used for both formative and summative assessment, as well as a longitudinal study of the leadership growth of the students.

Before those assessments can be initiated, the instrument must be validated and tested for reliability. Figure 1 illustrates the process followed.

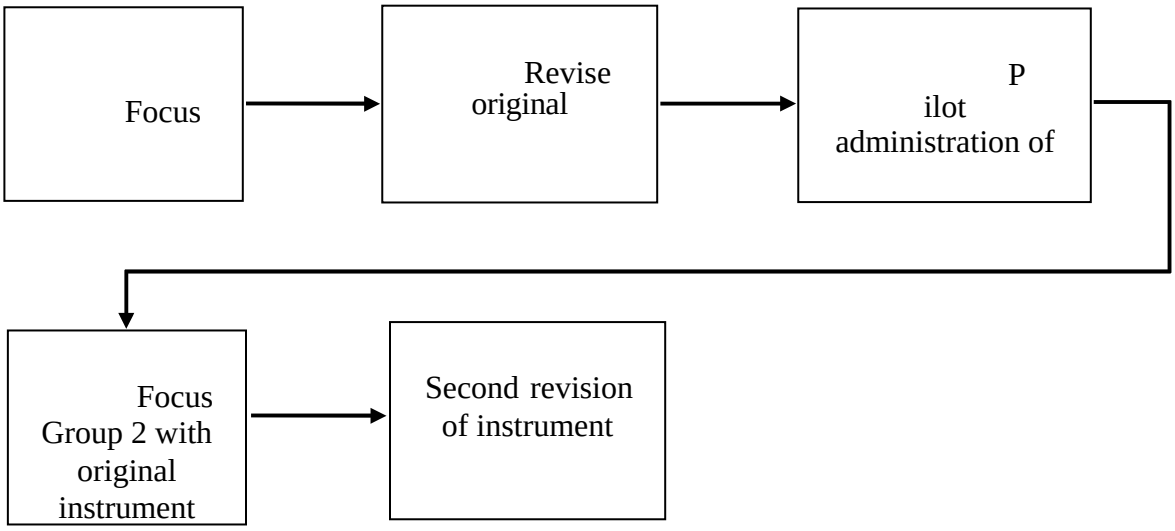


Figure 1. Block diagram of the validation and reliability process.

Focus Group 1

Just before the Fall 2009 semester began, a focus group study was conducted. Unfortunately, because of a general lack of students on campus at the end of the summer, only five students were available to participate – two were classified as sophomores, one as a junior, and two as seniors. None of the students transferred to Lawrence Tech, all were female, and all were considered full-time students (enrolled in 12 or more credit hours per semester) of traditional age. Each student's degree program was housed in a different department and each of the fourColleges present at Lawrence Tech (Engineering, Architecture & Design, Arts & Sciences, and Management) were represented. Because of the small focus group size which was not a good representation of the entire student population, a second focus group study was conducted later in the semester and will be discussed later in the paper.

General comments relating to the entire instrument from the first focus group were useful to a second draft of the instrument. They noted that they would choose the response "neither agree nor disagree" when they did not understand the statement. The response option of "I do not understand the statement" was added for clarification. In addition, the students were concerned that their answers "depended on the situation." Therefore, the instructions now include "Please answer based on the situation or context that makes the most sense to you." The students clarified that they chose "strongly agree" over "agree" or "strongly disagree" over "disagree" when the item spoke to their core values or when they were passionate about the topic. They were concerned that some of the statements were phrased negatively, but several survey items were intentionally phrased in this manner to elicit responses that are sometimes agreeable and other times disagreeable. This is common on questionnaires to help identify respondents that reply to each item with the same answer without reading the statements. Finally, the students felt concerned about choosing a "correct" answer that would express their capabilities as leaders and not always a response that reflected their beliefs or actions. Although the instructions, stated "Please answer the questions below as honestly and fairly as you can in terms of how you think and/or behave the **majority of the time**. There are no right or wrong answers, only honest ones.", it is not uncommon that students will skip the instructions or simply forget them once they are engaged in the statements. Therefore, a final statement was added to the instrument: "I answered the previous questions as honestly and fairly as I could in terms of how I think and/or behave the majority of the time." With this statement, the investigators can determine how much merit to place on a given survey.

Specific statements were rewritten, deleted, or moved based on comments by the first focus group. Referring to Appendix A, statement 3 was deleted because the students believed actions were equally important to writing and speaking. Minor editing clarified statements 5, 6, and 7. For statement 14, the students were concerned what "values" meant (i.e., could values mean biases or core personal beliefs?). "Values" has been changed to "core personal beliefs."

Because statements prior to 18 focused on leading, the students interpreted statement 18 as being negative (i.e., being a follower is bad) which is not the intension. This statement has been moved near the beginning of the instrument and is restated as "I am willing to be a follower." To further examine the attribute of being a follower, a second related statement was added: "I know when to lead and when to follow." Statement 25 was confusing because of its negative phrasing. It has been rewritten. The phrasing in statement 26 of "openly challenge" was too confrontational/threatening. The phrase has been changed to "confront." Statement 29 needed clarified since no two people are identical. It now contains the phrase "viewpoints that are different than my own." In addition, this statement was placed earlier in the instrument so as not to be confused with the statement referring to one's own identity and culture (i.e., to separate statements of viewpoints versus culture). Finally, the demographic question concerning age was extended to include those students under age 18. Appendix B contains all of the changes and was used for the pilot testing in the Leadership Models and Practices course; pilot testing results are

given in Section 5

Focus Group 2

Near the conclusion of the Fall 2009 semester a second focus group study of the original instrument was conducted because of the limited size and diversity of the first focus group. Unfortunately, it still proved difficult to recruit males to participate in the focus group, not necessarily because they were unwilling, but because of coincidental time-conflicts. As a result the second focus group contained six females and one male. One of the students was classified as a freshman, four as sophomores, one as a junior, and one as a senior. None of the students transferred to Lawrence Tech and all were considered full-time students. The students majors were Business Management, Media Communications, Architecture, Information Technology Environmental Chemistry/Math (double major), and Mechanical Engineering/Applied Physics (double major). Three of the students had completed the revised instrument (in Appendix B) previously in the semester in the Leadership Models and Practices course, so they also spoke about their reactions during the earlier administration regardless of the fact that they were reviewing the original (Appendix A) instrument.

Many of the comments by the focus group were similar to those expressed by the first focus group. For example, they were concerned that responses "depended on the situation." In addition, they were concerned about what is meant in the instructions by "majority of the time." This will be clarified with additional statements in the directions: "This includes how you think and/or behave in all environments, not just leadership situations. Examples may include work, classroom, student activities, home, social situations, etc." The students were concerned responses by students that were not interested in leadership (i.e., they may not answer thoughtfully). To address this, they suggested that the survey is completed during class time (which it is), near the beginning of class so students would not rush to complete it. In addition, so many students are asked to do on-line surveys, they felt that it would be taken more seriously if it was a pencil-and-paper format. Also, class credit should be given for completing the survey (it is given). They were not concerned that completing the survey during class would effect their responses to align with the course material nor and were they fearful that their responses would affect their course grade. They suggested that the instructor leaves the room during survey completion, which would help them feel they are responding more honestly and not in a way that the instructor or the course material would pressure them to respond. There was some concern that a few of the statements should not have responses of "strongly agree" to "strongly disagree," but instead should be "often," "sometimes," "never," etc. Four of the statements (11, 18, 27, and 29) were considered for the responses to be changed to "almost always, often, sometimes, rarely, almost never." A better alternative will be to split the instrument into two parts. Part one will measure students' thoughts on leadership using the "strongly agree" to "strongly disagree," while part two will measure actual student behavior using the "almost always" to "almost never" scale. This will allow similar statements between each part to be cross-correlated between thoughts and behaviors. This will increase the instrument's number of statements to approximately 45.

The second focus group suggested some specific changes to individual statements. Statement 1 appears as a double-negative when considering the responses. It will be re-phrased to eliminate the word "don't." They had similar concerns about the wording of statements 5 and 6 which have been changed. Statements 11 and 18 solicit a differing response based on the situation.
This may be easily fixed with the "almost always-almost never" scale. For statement 22, they were concerned that ethics are personal and different for each individual. This is acceptable for the measure needed for this statement; we only want to identify if the respondent stays within his ethics. It has been re-written as, "I think and behave ethically when I'm in a leadership positions." Statement 26 raised

multiple concerns. First, the students felt that if a boss or instructor is being unjust, that they would not be able to confront the person directly. Second the students stated that they do not often encounter unfair, unjust, or uncivil speech, so they responded "disagree" even though they felt they would confront the person. To address these concerns, the statement will state "I appropriate action against…if the situation arises." The focus group had the same concerns for statement 30, which has be restated similar to statement
26. Finally, concerning demographic questions, many students do not know their "current class level." Is it based on number of years or number of credit hours? Because Lawrence Tech measures class level in credit hours completed, the statement will be re-phrased to specify levels based on credit hours. In addition, students will be allowed to choose multiple majors.

4. Results from the Preliminary use of the Instrument

Pilot testing of the instrument was conducted in the second-year Leadership Models and Practices course.
During the second class period, three of the four sections of the Leadership Models and Practices course completed the Leadership Self-Perception Assessment Instrument. Student responses were recorded using an on-line survey tool in Blackboard course management software. Two weeks later, the statements were scrambled and re-administered to measure test-retest temporal stability and internal consistency. Only a single section, with 15 students, completed the test- retest survey administration. During the last week of classes, the students completed the instrument again (unscrambled) to preliminarily determine the shift in perception of their leadership/entrepreneurial skills upon completion of the Leadership Models and Practices course.

Reliability
Two statistical estimates are commonly used to examine the test-retest reliability of survey instruments: Cronbach's coefficient, α, and Spearman's rank correlation coefficient, ρ.
Cronbach's α measures the extent to which two or more variables measure a given latent construct, whereas Spearman's ρ measures the monotonic relationship between variables, or, in this case, whether responses exhibit temporal stability; in other words, it is a measure whether student responses remained consistent across time. To ensure robust tests, these estimates share a few statistical assumptions: first, that variables used to calculate an estimate have three or more conditions (response categories), and, second, that there is a sufficient number of observations that exhibit each of these conditions. Failure of either or both assumptions can lead to non-robust or unusually low estimates.

Given the small sample size (n=15), estimates should be interpreted with caution, but the results did indicated good reliability. 23 of 31 (74.2%) statements exhibit Cronbach's α estimates that were at least 0.6, indicating that these variables reliably measure the same concept at both test and re-test administrations. Three of the 31 (9.7%) have abnormally low estimates (0.0 to 0.07), but further inspection revealed that responses to these statements did not exhibit one of the two assumptions which generate robust estimates – specifically responses on at least one variable in each pairwise comparison were observed for only two conditions. Finally, 4 of 31 (12.9%) statements exhibit marginal coefficients, and one (statement 3) exhibits poor reliability ($\alpha = 0.247$).

Spearman's ρ estimates suggest that responses to statements were stable across time for most statements with 21 of 31 (67.7%) of the statements having ρ coefficients greater than 0.5. This indicates that most of the variance in responses to the statement at re-test is explained by variance in responses to the statement at the baseline administration. As with the estimates of Cronbach's α, 3 of 31 (9.7%)

statements have extremely low Spearman estimates due to violations of statistical assumptions. The remaining statements (7 of 31, or 22.6%) exhibit marginal-to-poor Spearman's ρ estimates, indicating that the distribution of responses changed considerably from one test administration to the next.

Finally, Cronbach's α and Spearman's ρ estimates were jointly considered and five statements had both marginal Cronbach's α estimates (< 0.6) and marginal Spearman's ρ (< 0.5) estimates:

Statement 3: I think self-reflection is an unnecessary activity for personal development. Statement 9: I need reassurance from others to feel confident about my decisions and actions. Statement 13: My past experiences influence my decisions.
Statement 16: I know I am the leader when I am in a position of authority.
Statement 19: My personality and personal characteristics influence my leadership style.
Further inspection reveals violation of statistical assumptions for calculating estimates for statements 3, 13, and 19. In each case, only two conditions are observed on at least one variable in each pairwise comparison. One should consider the Cronbach's α and Spearman's ρ estimates for these three statements to be reasonably high in light of the violation. Therefore, only two statements – Statement 9 and Statement 16 – are deemed non-reliable. However, as previously mentioned, the small sample size is problematic for results interpretation, and a test-retest will be performed on the revised survey to determine if Cronbach's α and Spearman's ρ estimates would be higher with a survey conducted on a larger, substantially identical sample.

Pilot Test

The survey instrument was pilot tested in three sections of the Leadership Principles and Practices course with 41 students completing the survey at the beginning (pre-test) and end(post- test) of the course. While a detailed analysis of this data is beyond the scope of this manuscript, a brief discussion of results is included to show the survey was successfully pilot tested and that meaningful results were generated.

For purposes of statistical analysis, responses to the 31 attitude statements were assigned values of 1 (strongly disagree) to 5 (strongly agree). Paired t-tests were then conducted on each pair of pre- and post-test statements to determine statistical significance of difference in means. It was determined that eight statements had statistically significantly different means between post- and pre-assessment administrations at the 0.1 level:

Statement 5: I am comfortable making presentations or giving performances to varying audiences.
Statement 8: I am comfortable being assertive.
Statement 11: I am aware of my personal strengths and weaknesses.
Statement 20: I can identify by leadership strengths and weaknesses.
Statement 25: I solicit ideas from people with viewpoints that are different from mine.
Statement 26: I can articulate my personal leadership style.
Statement 27: I confront unfair, unjust, or uncivil speech and behavior of others.
Statement 28: I actively participate in service/volunteer activities.
Statement 31: I know when to lead and when to follow.

As such, there are leadership skills that the students felt were improved by the course, but less than desired. Finally, it should be noted that none of these eight statements had questionable reliability data.

5. Conclusions

An instrument for self-assessment of leadership skills has been developed that addresses the Relational Model of Leadership and the Leadership Education Goals of Lawrence Tech. The instrument has been revised based on two focus group studies. Preliminary evidence suggests that the instrument is temporally stable and internally consistent. In addition, a pilot test of the instrument revealed that the students perceived an improvement in some leadership skills upon completion of one component of the leadership curriculum.

The goal is to have a validated and reliable instrument that can be used in a longitudinal investigation to determine if the overall leadership curriculum has an impact on students' self- perception of leadership skills and traits, and which components in the curriculum have the greatest impact. As such, development of the instrument will continue during the Spring 2010 semester with one more focus group study and reliability/validity study. The longitudinal study will begin in Fall 2010. It is still to be determined how often and to how many students the instrument will be administered.

Acknowledgements
The authors acknowledge Christopher Ward, University of Michigan Graduate Student for statistical analysis of the data; Matthew Holsapple and Kelly Walczak for conducting the focus groups; the course instructors – Keith Grant, Ben Sweet, and Cindy Swiantek; the Leadership Curriculum Implementation Committee members – Dr. Richard Bush, Jamie Hobart, Dr. Gladys Aviles, Gretchen Maricak, Janielle Tchakerian, Dr. James Rogers, Dr. Shannon Timmons, Leslie Wilson, and Dr. Jackie Stavros; Dr. Lewis Walker and Dr. Maria Vaz for support in making the curriculum a reality; the Kern Entrepreneurship Education Network (KEEN) for financial support; the students who participated in the focus groups; and the Lawrence Tech faculty who have helped to develop and integrated the curriculum into all of the undergraduate degree programs.

References

Gerhart, A.L., Carpenter, D.D. (2008) "Creative Problem Solving Course – Student Perceptions of Creativity and Comparisons of Creative Problem Solving Methodologies." *Proceedings of the 2008 American Society for Engineering Education Annual Conference and Exposition*, Pittsburgh, PA.

1. Gerhart, A.L., Grunow, M.L. (2009) "Leadership Models and Practices Course – Student Perceptions and Development of Leadership Skills and Incorporation of a New Leadership Course." *Proceedings of the 2009 American Society for Engineering Education Annual Conference and Exposition*, Austin, TX.
2. Komives, S.R., Lucas, N., McMahon, T.R. (2007) *Exploring Leadership – For College Students Who Want to Make a Difference*. 2nd Ed. Jossey-Bass, John Wiley & Sons.
3. Komives, S. R., Owen, J. E., Longerbeam, S. D., Mainella, F.C., and Osteen, L. (2005) "Developing a leadership identity: A grounded theory." *Journal of College Student Development*. Vol. 46, No. 6, pp. 593- 611.
4. Komives, S. R., Longerbeam, S.D., Owen, J.E., S. D., Mainella, F.C., and Osteen, L. (2006) "A Leadership Identity Development Model: Applications from a Grounded Theory." *Journal of College Student Development*, Vol. 47, No. 4, pp. 401-418.
5. Karnes, F. A. & Chauvin, J. C. (1985) *Leadership Skills Inventory: Administration Manual and Manual of Leadership Activities*. East Aurora, NY: D.O.K. Pub.
6. Karnes, F.A., & Chauvin, J.C. (1985). Leadership Skills Inventory, East Aurora, NY: United D.O.K.
7. Statistics Solutions, Inc. (2010) http://www.statisticssolutions.com/Leadership-Skills-Inventory-Karnes, accessed January 3, 2010. Clearwater, FL.

8. Edmunds, A.L. (1998) "Content, concurrent and construct validity of the leadership skills inventory." *Roeper Review*, Vol. 20, No. 4, pp. 281-84.
9. Anderson, T. D. (1998). *Transforming leadership: Equipping yourself and coaching others to build the leadership organization*. 2nd Ed. Boca Raton, FL: St. Lucie Press.
10. Anderson, T. D. and Keis, K. *Leadership Skills Inventory – Self*. Consulting Resource Group International, Inc. Publishing. Sumas, WA.
11. Statistics Solutions, Inc. (2010) http://www.statisticssolutions.com/Leadership-Skills-Inventory, accessed January 3, 2010. Clearwater, FL.
12. Kouzes, J.M. and Posner, B.Z. (2003) *The Leadership Practices Inventory (LPI): Self Instructions*. 3rd Ed. Pfeiffer.
13. Statistics Solutions, Inc. (2010) http://www.statisticssolutions.com/leadership-practices-inventory, accessed January 3, 2010. Clearwater, FL.
14. Kouzes, J.M. and Posner, B.Z. (2003) *Leadership Challenge*. 3rd Ed. Jossey-Bass.
15. Kouzes, J.M. and Posner, B.Z. (2005) *The Student Leadership Practices Inventory (LPI): Self Instrument*. 2nd Ed. Jossey-Bass.
16. Kouzes, J.M., B.Z. Posner. (2008). *The Student Leadership Challenge: Five Practices for Exemplary Leaders*. Jossey-Bass, John Wiley & Sons.
17. Jackson, D.N. (2003) http://www.sigmaassessmentsystems.com/assessments/lsp.asp, accessed January 3, 2010.
18. Statistics Solutions, Inc. (2010) http://www.statisticssolutions.com/Leadership-Skills-Profile, accessed January 3, 2010. Clearwater, FL.
19. Buros Institute of Mental Measurements. Test Reviews Online. http://buros.unl.edu/buros/jsp/reviews.jsp?item=17091608 accessed January 4, 2010. Questionnaire available through Silverwood Enterprises, LLC, Sharon Center, OH.
20. Center for Creative Leadership, http://www.ccl.org/leadership/pdf/assessments/CLD.pdf accessed January 4, 2010.
21. Center for Student Studies, http://www.srlsonline.org/ accessed January 4, 2010.
22. Slack, C. Socially Responsible Leadership Scale. National Clearinghouse for Leadership Programs. University of Maryland. http://www.nclp.umd.edu/resources/socially%20responsible%20leadership%20scale.asp accessed January 4, 2010.
23. Sanborn, M. (2006) *You Don't Need a Title to Be a Leader*. Doubleday, New York.
Council for the Advancement of Standards in Higher Education. (2006) *CAS Self-Assessment Guide for Student Leadership Programs*. Washington, D.C. August 2006.

Appendix A
Instrument in its original form, before revisions based on the Focus Group 1.
Leadership Self-Perception Assessment

Banner ID: _____
(Used for data-collection and tracking purposes only. Your responses will remain confidential)

Directions:

Please answer the questions below as honestly and fairly as you can in terms of how you think and/or behave the **majority of the time**. There are no right or wrong answers, only honest ones. Once you select an answer, you cannot go back and change it.

These 30 questions were adapted from the Council for the Advancement of Standards in Higher Education section on Student Leadership Programs. Questions were developed based on the course objectives and topics for this class.

Choose from:
Strongly agree, agree, neither agree nor disagree, disagree, strongly disagree Questions:

1. I don't make a decision until I have considered information from a variety of sources, including personal experience or observation and feedback from peers.

2. I think self-reflection is an unnecessary activity for personal development.

3. Writing and speaking are the most effective skills I have for influencing others.

4. I am comfortable making presentations or giving performances to varying audiences.

5. If I am unhappy about something, I complain until someone else makes an effort to improve the problem.

6. I am comfortable taking risks.

7. I am comfortable being assertive in most situations.

8. I need reassurance from others to feel confident about my decisions and actions.

9. My decisions and actions align with my personal values.

10. I am aware of my personal strengths and weaknesses.

11. I often seek feedback from others, such as peers and supervisors.
12. My past experiences influence my decisions.
13. I am willing to bend rules in order to accomplish what I think is important.
14. I am aware of how my values influence my decisions.
15. I know I am the leader when I am in a position of authority.
16. I have the capacity to be a leader.
17. I am more likely to achieve my goals if I have direct supervision.
18. I am comfortable being a follower.
19. My personality and personal characteristics influence my leadership style.
20. I can explain my personal leadership style to others.
21. As a leader, I need to be concerned about the environment and sustainability of natural resources.
22. I am ethical in my thoughts and behaviors when I'm in leadership positions.
23. When working on something new or unfamiliar, I ask others to be involved.
24. I actively contribute to the achievement of group goals in team situations.
25. I don't have a leadership style because I am not a leader.
26. I openly challenge unfair, unjust, or uncivil speech and behavior of others.
27. I actively participate in service/volunteer activities.
28. I understand my own identity and culture.
29. I actively seek involvement with people different from myself.
30. I confront or challenge the use of stereotypes or offensive language by others.

Demographic Information

What is your current age?

18 19 20 21 22 23 24 25 26 or olderWhat is your sex?
-Male -Female -Transgender

What is your citizenship status?
-US citizen -US permanent resident -Neither US citizen or permanent resident

How do you identify yourself racially/ethically? (Check all that apply)
___African American/Black
___Asian/Pacific Islander
___Hispanic/Latino/Mexican American
___Native American/First Nations
___White/Caucasian

Did you transfer to Lawrence Tech from another college or university?
___No
___Yes, transferred from a two-year college
___Yes, transferred from a four-year college

What is your current enrollment status?
-Full-time -Less than full-time

What is your current class level?
-freshman -sophomore -junior -senior -unclassified or non-degree seeking

Which of the following departments houses your academic major or expected major?
-Architecture
-Art and Design
-Humanities, Social Sciences, and Communication
-Mathematics and Computer Science
-Natural Sciences
-Undergraduate Management Programs
-Civil Engineering
-Electrical or Computer Engineering
-Engineering Technology
-Mechanical Engineering
-BSIT Program

Appendix B
Instrument as administered to the LDR 2001 students during Fall 2009, after revisions based on Focus Group 1 – Note that "I do not understand the statement" is an added response.

Leadership Self-Perception Assessment

Instructions
Please answer the questions below as honestly and fairly as you can in terms of how you think and/or behave the **majority of the time**. Please answer based on the situation or context that makes the most sense to you. There are no right or wrong answers, only honest ones. Once you select an answer, you cannot go back and change it.
The end of the survey contains some demographic data collection questions. Please answer these honestly.

Multiple Attempts
Not allowed. This Survey can only be taken once. This Survey can be saved and resumed later.

Survey:
1. Enter your Banner ID (Used for data-collection and tracking purposes only. Your responses will remain confidential).

Choose from: Strongly agree, agree, neither agree nor disagree, disagree, strongly disagree, I do not understand the statement

2. I don't make a decision until I have considered information from a variety of sources, including personal experience or observation and feedback from peers.

3. I think self-reflection is an unnecessary activity for personal development.

4. If I am unhappy about something, I wait until someone else makes an effort to improve the problem.

5. I am comfortable making presentations or giving performances to varying audiences.

6. I am willing to be a follower.

7. I am comfortable taking reasonable risks.

8. I am comfortable being assertive.

9. I need reassurance from others to feel confident about my decisions and actions.
10. My decisions and actions align with my personal values.

11. I am aware of my personal strengths and weaknesses.

12. I often seek feedback from others, such as peers and supervisors.

13. My past experiences influence my decisions.

14. I am willing to bend rules in order to accomplish what I think is important.

15. I rely on my core personal beliefs when making decisions.

16. I know I am the leader when I am in a position of authority.

17. I have the capacity to be a leader.

18. I am more likely to achieve my goals if I have direct supervision.

19. My personality and personal characteristics influence my leadership style.

20. I can identify by leadership strengths and weaknesses.

21. As a leader, I need to be concerned about the environment and sustainability of natural resources.

22. I am ethical in my thoughts and behaviors when I'm in leadership positions.

23. When working on something new or unfamiliar, I ask others to be involved.

24. I actively contribute to the achievement of group goals in team situations.

25. I solicit ideas from people with viewpoints that are different from mine.

26. I can articulate my personal leadership style.

27. I confront unfair, unjust, or uncivil speech and behavior of others.

28. I actively participate in service/volunteer activities.

29. I understand my own identity and culture.

30. I confront the use of stereotypes by others.

31. I know when to lead and when to follow.

32. I answered the previous questions as honestly and fairly as I could in terms of how I think and/or behave the majority of the time.

33. What is your current age?
Under 18 18 19 20 21 22 23 24 25 26 or older

34. What is your sex?
Male Female Transgendered

35. What is your citizenship status?
US citizen US permanent resident Neither US citizen or permanent resident

36. How do you identify yourself racially/ethically? (Select all that apply)
    African American/Black
    Asian/Pacific Islander
    Hispanic/Latino/Mexican
    American Native
    American/First Nations
    White/Caucasian

37. Did you transfer to Lawrence Tech from another college or university?
    No Yes, transferred from a two-year college Yes, transferred from a four-year college

38. What is your current enrollment status
    Full-time (12 credits or more) Less than full-time (11 credits or fewer)

39. What is your current class level?
    Freshman
    Sophomore
    junior
    senior
    unclassified or non-degree seeking

40. Which of the following departments houses your academic major or expected major?
    Architecture
    Art and Design
    Humanities, Social Sciences, and Communication Mathematics and Computer Science
    Natural Sciences
    Undergraduate Management Programs
    Civil Engineering
    Electrical or Computer Engineering
    Engineering Technology
    Mechanical Engineering
    BSIT Program

2010 Assessment of Teamwork at Lawrence Technological University – Summary

A total of 523 Teamwork Evaluations Surveys were completed in the spring of 2010 as part of the assessment program. This report provides summary information in three appendices: Appendix A provides the responses of all students; Appendix B reports the responses by major; and Appendix C reports the responses by class level. In each Appendix, the tables represent the frequency of responses for each question. Not every student completed every question soboth percent (total) and valid percent (total of responses) are presented.

Initial Observations:

- Over 90% of freshman had at least one team experience.
- Shift from 1-2 to 6-10 as they move to seniors but 3-5 is still most common. Seniors have taken 35+ courses so this is a bit low (and same % as freshman year)
- Very few long term team assignments so could be looking more at "group" work than "team" work even though definition was provided. Also, 26% of seniors are reporting most assignments are 1 to 3 weeks. Those might not be in capstone courses yet.
- Self select or by instructor with no explanation was the most common method for team formation. This needs work.
- The results in section 2 (team process and progress) were surprisingly good. The only items that need improvement are peer evaluation, which isn't part of most assignments, and group decision making. Only half of the students agreed that entire team was part of decision with no member dominating. Conversely, about ½ the time a single team member dominating the group could have been an issue.
- Students recognize the importance of teamwork but there were relatively high percentages of students (upwards of 30%) who were neutral on statements about constructive teamwork experiences.
- 44% of juniors and more than 60% of seniors agreed or strongly agreed that competition for grades within group is a negative aspect of teamwork.
- About 30% and 38% of all students agree with statements on ego and problem solving, respectively. Both could be addressed. Especially problem solving.
- Approximately half of students cite inability to schedule meetings as a negative aspect of teamwork. The same fraction either agrees with or is neutral on "too much effort and not productive"
- Overall teamwork experiences are positive and grades are fair. This is a strong statement.
- As in 2006, about half of student body doesn't engage in teamwork outside of class. This could be an issue for Leadership and Service Initiatives.

Appendix A Overall Student Responses

Section 1 – Teamwork Background

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

Q01

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	19	3.6	3.6	3.6
	1 to 2	86	16.4	16.5	20.1
	3 to 5	198	37.9	37.9	58.0
	6 to 10	145	27.7	27.8	85.8
	11 or more	74	14.1	14.2	100.0
	Total	522	99.8	100.0	
Missing	System	1	.2		
Total		523	100.0		

What is the AVERAGE length of these team assignments?

Q02

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	< 1 week	58	11.1	11.5	11.5
	1 to 3 weeks	301	57.6	59.5	70.9
	4 to 6 weeks	75	14.3	14.8	85.8
	7 to 9 weeks	39	7.5	7.7	93.5
	10 to 12 weeks	17	3.3	3.4	96.8
	13 to 15 weeks	16	3.1	3.2	100.0
	Total	506	96.7	100.0	
Missing	System	17	3.3		
Total		523	100.0		

What was the PRIMARY way that teams were assigned in the classes?

Q03

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	By students or self selected	292	55.8	58.9	58.9
	By instructor without explanation	121	23.1	24.4	83.3
	By instructor based on personality or skills	33	6.3	6.7	89.9
	By instructor based on schedules	12	2.3	2.4	92.3
	By instructor based on both	17	3.3	3.4	95.8
	Other	21	4.0	4.2	100.0
	Total	496	94.8	100.0	
Missing	System	27	5.2		
Total		523	100.0		

Section 2 – Team Process and Progress

How often did the instructor monitor the teamwork process and team progress?

Q04

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - Never	20	3.8	4.0	4.0
	2 - Almost never	118	22.6	23.7	27.7
	3 - Half of the time	184	35.2	36.9	64.7
	4 - Most of the time	147	28.1	29.5	94.2
	5 - Always	29	5.5	5.8	100.0
	Total	498	95.2	100.0	
Missing	System	25	4.8		
Total		523	100.0		

How often did instructor provide guidance or instructions on how team members should work together before starting the assignment/project?

Q05

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - Never	25	4.8	5.0	5.0
	2 - Almost never	97	18.5	19.5	24.5
	3 - Half of the time	160	30.6	32.2	56.7
	4 - Most of the time	175	33.5	35.2	92.0
	5 - Always	40	7.6	8.0	100.0
	Total	497	95.0	100.0	
Missing	System	26	5.0		
Total		523	100.0		

How often did teamwork assignments have roles (either student assigned or instructor assigned) for team members?

Q06

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - Never	41	7.8	8.3	8.3
	2 - Almost never	108	20.7	21.8	30.1
	3 - Half of the time	159	30.4	32.1	62.2
	4 - Most of the time	131	25.0	26.5	88.7
	5 - Always	56	10.7	11.3	100.0
	Total	495	94.6	100.0	
Missing	System	28	5.4		
Total		523	100.0		

If team roles were assigned, how often were responsibilities associated with those roles communicated?

Q07

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - Never	51	9.8	10.7	10.7
	2 - Almost never	118	22.6	24.7	35.4
	3 - Half of the time	128	24.5	26.8	62.1
	4 - Most of the time	130	24.9	27.2	89.3
	5 - Always	51	9.8	10.7	100.0
	Total	478	91.4	100.0	
Missing	System	45	8.6		
Total		523	100.0		

How often did your team focus on a common goal or a single project?

Q08

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - Never	7	1.3	1.4	1.4
	2 - Almost never	7	1.3	1.4	2.9
	3 - Half of the time	95	18.2	19.4	22.2
	4 - Most of the time	238	45.5	48.6	70.8
	5 - Always	143	27.3	29.2	100.0
	Total	490	93.7	100.0	
Missing	System	33	6.3		
Total		523	100.0		

How often were you required to evaluate your team members as a component of the team process?

Q09

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - Never	43	8.2	8.6	8.6
	2 - Almost never	103	19.7	20.7	29.3
	3 - Half of the time	151	28.9	30.3	59.6
	4 - Most of the time	123	23.5	24.7	84.3
	5 - Always	78	14.9	15.7	100.0
	Total	498	95.2	100.0	
Missing	System	25	4.8		
Total		523	100.0		

How often did team members take responsibility for their work and contributions to the team?

Q10

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - Never	10	1.9	2.0	2.0
	2 - Almost never	39	7.5	7.8	9.9
	3 - Half of the time	131	25.0	26.4	36.2
	4 - Most of the time	251	48.0	50.5	86.7
	5 - Always	66	12.6	13.3	100.0
	Total	497	95.0	100.0	
Missing	System	26	5.0		
Total		523	100.0		

How often did members of the team communicate and resolve conflict in a respectful manner?

Q11

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - Never	7	1.3	1.4	1.4
	2 - Almost never	26	5.0	5.2	6.6
	3 - Half of the time	89	17.0	17.9	24.5
	4 - Most of the time	249	47.6	50.0	74.5
	5 - Always	127	24.3	25.5	100.0
	Total	498	95.2	100.0	
Missing	System	25	4.8		
Total		523	100.0		

How often did all team members of the team participate in decision making with no single team member dominating?

Q12

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - Never	16	3.1	3.2	3.2
	2 - Almost never	64	12.2	12.9	16.1
	3 - Half of the time	164	31.4	33.0	49.1
	4 - Most of the time	192	36.7	38.6	87.7
	5 - Always	61	11.7	12.3	100.0
	Total	497	95.0	100.0	
Missing	System	26	5.0		
Total		523	100.0		

Section 3 – Constructive Teamwork Experiences

I enjoy working on team assignments in my courses at Lawrence Tech because:
Teamwork skills are crucial in my field.

Q13A

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - STRONGLY DISAGREE	5	1.0	1.0	1.0
	2 - DISAGREE	7	1.3	1.4	2.4
	3 - NEUTRAL	54	10.3	10.8	13.2
	4 - AGREE	169	32.3	33.7	46.9
	5 - STRONGLY AGREE	266	50.9	53.1	100.0
	Total	501	95.8	100.0	
Missing	System	22	4.2		
Total		523	100.0		

I was exposed to new methods for interpersonal interaction.

Q13B

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - STRONGLY DISAGREE	25	4.8	5.0	5.0
	2 - DISAGREE	64	12.2	12.9	17.9
	3 - NEUTRAL	144	27.5	28.9	46.8
	4 - AGREE	199	38.0	40.0	86.7
	5 - STRONGLY AGREE	66	12.6	13.3	100.0
	Total	498	95.2	100.0	
Missing	System	25	4.8		
Total		523	100.0		

It will help me be a better citizen.

Q13C

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - STRONGLY DISAGREE	29	5.5	5.8	5.8
	2 - DISAGREE	47	9.0	9.5	15.3
	3 - NEUTRAL	165	31.5	33.2	48.5
	4 - AGREE	175	33.5	35.2	83.7
	5 - STRONGLY AGREE	81	15.5	16.3	100.0
	Total	497	95.0	100.0	
Missing	System	26	5.0		
Total		523	100.0		

I understand myself better by my interaction with other students.

Q13D

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - STRONGLY DISAGREE	30	5.7	6.1	6.1
	2 - DISAGREE	61	11.7	12.3	18.4
	3 - NEUTRAL	140	26.8	28.3	46.7
	4 - AGREE	190	36.3	38.4	85.1
	5 - STRONGLY AGREE	74	14.1	14.9	100.0
	Total	495	94.6	100.0	
Missing	System	28	5.4		
Total		523	100.0		

I recognize the positive outcomes of working cooperatively.

Q13E

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - STRONGLY DISAGREE	8	1.5	1.6	1.6
	2 - DISAGREE	11	2.1	2.2	3.8
	3 - NEUTRAL	64	12.2	12.9	16.8
	4 - AGREE	257	49.1	51.9	68.7
	5 - STRONGLY AGREE	155	29.6	31.3	100.0
	Total	495	94.6	100.0	
Missing	System	28	5.4		
Total		523	100.0		

I have forged close relationships with my team members.

Q13F

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - STRONGLY DISAGREE	18	3.4	3.6	3.6
	2 - DISAGREE	64	12.2	12.9	16.5
	3 - NEUTRAL	177	33.8	35.6	52.1
	4 - AGREE	159	30.4	32.0	84.1
	5 - STRONGLY AGREE	79	15.1	15.9	100.0
	Total	497	95.0	100.0	
Missing	System	26	5.0		
Total		523	100.0		

I feel safe and supported in a team environment.

Q13G

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - STRONGLY DISAGREE	20	3.8	4.0	4.0
	2 - DISAGREE	50	9.6	10.0	14.1
	3 - NEUTRAL	189	36.1	38.0	52.0
	4 - AGREE	175	33.5	35.1	87.1
	5 - STRONGLY AGREE	64	12.2	12.9	100.0
	Total	498	95.2	100.0	
Missing	System	25	4.8		
Total		523	100.0		

It is clear to me why working on teams is critical to my education.

Q13H

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - STRONGLY DISAGREE	12	2.3	2.4	2.4
	2 - DISAGREE	24	4.6	4.8	7.2
	3 - NEUTRAL	78	14.9	15.7	22.9
	4 - AGREE	222	42.4	44.7	67.6
	5 - STRONGLY AGREE	161	30.8	32.4	100.0
	Total	497	95.0	100.0	
Missing	System	26	5.0		
Total		523	100.0		

Section 4 – Negative Teamwork Experiences

The negative aspects with teamwork at Lawrence Tech are: Competition within group for better grades.

Q14A

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - STRONGLY DISAGREE	72	13.8	14.3	14.3
	2 - DISAGREE	181	34.6	35.9	50.2
	3 - NEUTRAL	154	29.4	30.6	80.8
	4 - AGREE	75	14.3	14.9	95.6
	5 - STRONGLY AGREE	22	4.2	4.4	100.0
	Total	504	96.4	100.0	
Missing	System	19	3.6		
Total		523	100.0		

Personal ego of team members dominates over cooperation.

Q14B

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - STRONGLY DISAGREE	31	5.9	6.2	6.2
	2 - DISAGREE	145	27.7	28.8	34.9
	3 - NEUTRAL	162	31.0	32.1	67.1
	4 - AGREE	125	23.9	24.8	91.9
	5 - STRONGLY AGREE	41	7.8	8.1	100.0
	Total	504	96.4	100.0	
Missing	System	19	3.6		
Total		523	100.0		

Focus on the problem-solving outcome only and not the educational experience.

Q14C

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - STRONGLY DISAGREE	18	3.4	3.6	3.6
	2 - DISAGREE	104	19.9	20.7	24.3
	3 - NEUTRAL	195	37.3	38.8	63.1
	4 - AGREE	143	27.3	28.5	91.6
	5 - STRONGLY AGREE	42	8.0	8.4	100.0
	Total	502	96.0	100.0	
Missing	System	21	4.0		
Total		523	100.0		

Lack of bonding with team members.

Q14D

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - STRONGLY DISAGREE	28	5.4	5.6	5.6
	2 - DISAGREE	152	29.1	30.3	35.9
	3 - NEUTRAL	183	35.0	36.5	72.5
	4 - AGREE	109	20.8	21.8	94.2
	5 - STRONGLY AGREE	29	5.5	5.8	100.0
	Total	501	95.8	100.0	
Missing	System	22	4.2		
Total		523	100.0		

Inability to schedule meeting times.

Q14E

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - STRONGLY DISAGREE	18	3.4	3.6	3.6
	2 - DISAGREE	95	18.2	19.0	22.6
	3 - NEUTRAL	129	24.7	25.8	48.4
	4 - AGREE	180	34.4	36.0	84.4
	5 - STRONGLY AGREE	78	14.9	15.6	100.0
	Total	500	95.6	100.0	
Missing	System	23	4.4		
Total		523	100.0		

Teamwork requires too much effort and time and is not productive.

Q14F

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - STRONGLY DISAGREE	57	10.9	11.4	11.4
	2 - DISAGREE	173	33.1	34.6	46.0
	3 - NEUTRAL	147	28.1	29.4	75.4
	4 - AGREE	81	15.5	16.2	91.6
	5 - STRONGLY AGREE	42	8.0	8.4	100.0
	Total	500	95.6	100.0	
Missing	System	23	4.4		
Total		523	100.0		

Difficulty in determining individual or group roles and responsibilities.

Q14G

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - STRONGLY DISAGREE	35	6.7	6.9	6.9
	2 - DISAGREE	159	30.4	31.5	38.5
	3 - NEUTRAL	185	35.4	36.7	75.2
	4 - AGREE	98	18.7	19.4	94.6
	5 - STRONGLY AGREE	27	5.2	5.4	100.0
	Total	504	96.4	100.0	
Missing	System	19	3.6		
Total		523	100.0		

Section 5 – Background Teamwork Information

When considering my overall teamwork experiences in courses at Lawrence Tech, I consider my grades on assignments that require teamwork to be:

Q15

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - Mixed opinion	14	2.7	2.8	2.8
	2 - Lower than deserved	78	14.9	15.4	18.2
	3 - Fair	390	74.6	77.2	95.4
	4 - Higher than deserved	23	4.4	4.6	100.0
	Total	505	96.6	100.0	
Missing	System	18	3.4		
Total		523	100.0		

Overall, your teamwork experiences in courses at Lawrence Tech would best be described as:

Q16

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - Very detrimental	12	2.3	2.4	2.4
	2 - Detrimental	38	7.3	7.5	9.9
	3 - Neutral	104	19.9	20.6	30.6
	4 - Beneficial but not necessary	251	48.0	49.8	80.4
	5 – Necessary	99	18.9	19.6	100.0
	Total	504	96.4	100.0	
Missing	System	19	3.6		
Total		523	100.0		

Your teamwork experiences at Lawrence Tech, with respect to your education, would best be described as:

Q17

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - Very negative	12	2.3	2.4	2.4
	2 - Somewhat negative	38	7.3	7.5	9.9
	3 - Neutral	104	19.9	20.6	30.6
	4 - Somewhat positive	251	48.0	49.8	80.4
	5 - Very positive	99	18.9	19.6	100.0
	Total	504	96.4	100.0	
Missing	System	19	3.6		
Total		523	100.0		

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

Q18

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - No	224	42.8	44.7	44.7
	2 - Yes	277	53.0	55.3	100.0
	Total	501	95.8	100.0	
Missing	System	22	4.2		

Q18

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - No	224	42.8	44.7	44.7
	2 - Yes	277	53.0	55.3	100.0
	Total	501	95.8	100.0	
Missing	System	22	4.2		
Total		523	100.0		

If you answered yes, how often would you describe the teamwork experience as positive?

Q19

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - Never	3	.6	1.0	1.0
	2 - Almost never	6	1.1	2.0	3.0
	3 - Half of the time	54	10.3	18.2	21.2
	4 - Most of the time	174	33.3	58.6	79.8
	5 - Always	60	11.5	20.2	100.0
	Total	297	56.8	100.0	
Missing	System	226	43.2		
Total		523	100.0		

If you answered yes, your teamwork experiences outside of class at Lawrence Tech, with respect to your education, would best be described as:

Q20

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2 - Detrimental	7	1.3	2.4	2.4
	3 - Neutral	54	10.3	18.6	21.0
	4 - Beneficial but not necessary	131	25.0	45.2	66.2
	5 - Necessary	98	18.7	33.8	100.0
	Total	290	55.4	100.0	
Missing	System	233	44.6		
Total		523	100.0		

Section 6 – Demographics

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
	18	36	6.9	7.1	8.3
	19	63	12.0	12.5	20.8
	20	57	10.9	11.3	32.1
	21	76	14.5	15.0	47.1
	22	72	13.8	14.3	61.4
	23	54	10.3	10.7	72.1
	24	24	4.6	4.8	76.8
	25	22	4.2	4.4	81.2
	26	10	1.9	2.0	83.2
	27	14	2.7	2.8	85.9
	28	9	1.7	1.8	87.7
	29	5	1.0	1.0	88.7
	30	7	1.3	1.4	90.1
	31	11	2.1	2.2	92.3
	32	4	.8	.8	93.1
	33	5	1.0	1.0	94.1
	34	3	.6	.6	94.7
	35	2	.4	.4	95.0
	36	2	.4	.4	95.4
	37	1	.2	.2	95.6
	38	3	.6	.6	96.2
	39	1	.2	.2	96.4
	41	2	.4	.4	96.8
	42	1	.2	.2	97.0
	43	1	.2	.2	97.2
	44	1	.2	.2	97.4
	45	3	.6	.6	98.0
	46	1	.2	.2	98.2
	49	2	.4	.4	98.6
	50	1	.2	.2	98.8
	51	1	.2	.2	99.0
	53	1	.2	.2	99.2
	55	2	.4	.4	99.6
	56	1	.2	.2	99.8
	59	1	.2	.2	100.0
Missing	System	18	3.4		
Total		523	100.0		

Major

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	ARCHITECTURE & DESIGN	145	27.7	30.3	30.3
	ARTS & SCIENCES	81	15.5	16.9	47.3
	ENGINEERING	227	43.4	47.5	94.8
	MANAGEMENT	25	4.8	5.2	100.0
	Total	478	91.4	100.0	
Missing	System	45	8.6		
Total		523	100.0		

Class

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	FRESHMAN	103	19.7	19.7	19.7
	SOPHOMORE	123	23.5	23.5	43.2
	JUNIOR	126	24.1	24.1	67.3
	SENIOR	171	32.7	32.7	100.0
	Total	523	100.0	100.0	

GPA

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.0	1	.2	.2	.2
	.2	1	.2	.2	.4
	.4	5	1.0	1.0	1.4
	.5	1	.2	.2	1.6
	.8	1	.2	.2	1.8
	.9	1	.2	.2	2.1
	1.4	1	.2	.2	2.3
	1.9	6	1.1	1.2	3.5
	2.0	9	1.7	1.8	5.3
	2.1	3	.6	.6	6.0
	2.2	9	1.7	1.8	7.8
	2.3	4	.8	.8	8.6
	2.4	4	.8	.8	9.4
	2.5	20	3.8	4.1	13.6
	2.6	10	1.9	2.1	15.6
	2.7	14	2.7	2.9	18.5
	2.8	14	2.7	2.9	21.4
	2.9	27	5.2	5.5	26.9
	3.0	56	10.7	11.5	38.4
	3.1	24	4.6	4.9	43.3
	3.2	32	6.1	6.6	49.9
	3.3	35	6.7	7.2	57.1
	3.4	35	6.7	7.2	64.3
	3.5	42	8.0	8.6	72.9
	3.6	25	4.8	5.1	78.0
	3.7	32	6.1	6.6	84.6
	3.8	41	7.8	8.4	93.0
	3.9	22	4.2	4.5	97.5
	4.0	10	1.9	2.1	99.6
	4.2	1	.2	.2	99.8
	4.4	1	.2	.2	100.0
	Total	487	93.1	100.0	
Missing	System	36	6.9		
Total		523	100.0		

Black

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - NO	502	96.0	96.0	96.0
	2 - YES	21	4.0	4.0	100.0
	Total	523	100.0	100.0	

Asian

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - NO	475	90.8	90.8	90.8
	2 - YES	48	9.2	9.2	100.0
	Total	523	100.0	100.0	

Hispanic

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - NO	468	89.5	89.5	89.5
	2 - YES	55	10.5	10.5	100.0
	Total	523	100.0	100.0	

Native

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - NO	510	97.5	97.5	97.5
	2 - YES	13	2.5	2.5	100.0
	Total	523	100.0	100.0	

White

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - NO	106	20.3	20.3	20.3
	2 - YES	417	79.7	79.7	100.0
	Total	523	100.0	100.0	

How would you categorize the time of your course selection?

Q21G

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - MAJORITY BEFORE 5 PM	179	34.2	34.4	34.4
	2 - MAJORITY AFTER 5 PM	156	29.8	30.0	64.4
	3 - EVEN DISTRIBUTION	185	35.4	35.6	100.0
	Total	520	99.4	100.0	
Missing	System	3	.6		
Total		523	100.0		

Did you transfer into Lawrence Tech from another school?

Q21H

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - NO	298	57.0	57.6	57.6
	2 - TRANSFERED FROM 2-YEAR COLLEGE	159	30.4	30.8	88.4
	3 - TRANSFERRED FROM 4-YEAR COLLEGE	60	11.5	11.6	100.0
	Total	517	98.9	100.0	
Missing	System	6	1.1		
Total		523	100.0		

If you transferred into Lawrence Tech from another school, approximately how many hours did you transfer?

Q21I

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - 1 TO 14 HOURS	51	9.8	22.6	22.6
	2 - 15 TO 29 HOURS	69	13.2	30.5	53.1
	3 - 30 TO 59 HOURS	82	15.7	36.3	89.4
	4 - MORE THAN 60 HOURS	24	4.6	10.6	100.0
	Total	226	43.2	100.0	
Missing	System	297	56.8		
Total		523	100.0		

Appendix B Student Responses by Major

Section 1 – Teamwork Background

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

Q01 * Major Crosstabulation

			Major				Total
			ARCH	ARTS & SCIENCES	ENG	MGMT	
Q01	0	Count	4	4	11	0	19
		% within Major	2.8%	4.9%	4.8%	.0%	4.0%
	1 to 2	Count	27	9	40	3	79
		% within Major	18.8%	11.1%	17.6%	12.0%	16.6%
	3 to 5	Count	59	32	85	11	187
		% within Major	41.0%	39.5%	37.4%	44.0%	39.2%
	6 to 10	Count	40	29	54	7	130
		% within Major	27.8%	35.8%	23.8%	28.0%	27.3%
	11 or more	Count	14	7	37	4	62
		% within Major	9.7%	8.6%	16.3%	16.0%	13.0%
Total		Count	144	81	227	25	477
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

What is the AVERAGE length of these team assignments?

Q02 * Major Crosstabulation

			Major				Total
			ARCH	ARTS & SCIENCES	ENG	MGMT	
Q02	< 1 week	Count	15	9	27	2	53
		% within Major	10.7%	11.7%	12.3%	8.0%	11.5%
	1 to 3 weeks	Count	89	48	121	15	273
		% within Major	63.6%	62.3%	55.3%	60.0%	59.2%
	4 to 6 weeks	Count	18	11	35	3	67
		% within Major	12.9%	14.3%	16.0%	12.0%	14.5%
	7 to 9 weeks	Count	9	6	17	5	37
		% within Major	6.4%	7.8%	7.8%	20.0%	8.0%
	10 to 12 weeks	Count	6	1	9	0	16
		% within Major	4.3%	1.3%	4.1%	.0%	3.5%
	13 to 15 weeks	Count	3	2	10	0	15
		% within Major	2.1%	2.6%	4.6%	.0%	3.3%
Total		Count	140	77	219	25	461
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

What was the PRIMARY way that teams were assigned in the classes?

Q03 * Major Crosstabulation

			Major				Total
			ARCH	ARTS & SCIENCES	ENG	MGMT	
Q03	By students or self selected	Count	94	32	129	10	265
		% within Major	68.6%	42.1%	60.3%	41.7%	58.8%
	By instructor without explanation	Count	27	30	45	8	110
		% within Major	19.7%	39.5%	21.0%	33.3%	24.4%
	By instructor based on personality or skills	Count	5	7	16	2	30
		% within Major	3.6%	9.2%	7.5%	8.3%	6.7%
	By instructor based on schedules	Count	2	2	6	2	12
		% within Major	1.5%	2.6%	2.8%	8.3%	2.7%
	By instructor based on both	Count	5	1	7	1	14
		% within Major	3.6%	1.3%	3.3%	4.2%	3.1%
	Other	Count	4	4	11	1	20
		% within Major	2.9%	5.3%	5.1%	4.2%	4.4%
Total		Count	137	76	214	24	451
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

Section 2 – Team Process and Progress

How often did the instructor monitor the teamwork process and team progress?

Q04 * Major Crosstabulation

			Major				
			ARCH	ARTS & SCIENCES	ENG	MGMT	Total
Q04	1 - Never	Count	2	3	12	0	17
		% within Major	1.4%	3.9%	5.6%	.0%	3.8%
	2 - Almost never	Count	29	16	58	5	108
		% within Major	20.9%	21.1%	27.1%	20.8%	23.8%
	3 - Half of the time	Count	47	36	70	12	165
		% within Major	33.8%	47.4%	32.7%	50.0%	36.4%
	4 - Most of the time	Count	51	17	60	6	134
		% within Major	36.7%	22.4%	28.0%	25.0%	29.6%
	5 - Always	Count	10	4	14	1	29
		% within Major	7.2%	5.3%	6.5%	4.2%	6.4%
Total		Count	139	76	214	24	453
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

How often did instructor provide guidance or instructions on how team members should work together before starting the assignment/project?

Q05 * Major Crosstabulation

			Major				
			ARCH	ARTS & SCIENCES	ENG	MGMT	Total
Q05	1 - Never	Count	5	3	11	1	20
		% within Major	3.6%	3.9%	5.1%	4.0%	4.4%
	2 - Almost never	Count	28	15	37	4	84
		% within Major	20.4%	19.7%	17.3%	16.0%	18.6%
	3 - Half of the time	Count	39	24	72	8	143
		% within Major	28.5%	31.6%	33.6%	32.0%	31.6%
	4 - Most of the time	Count	51	29	75	10	165
		% within Major	37.2%	38.2%	35.0%	40.0%	36.5%
	5 - Always	Count	14	5	19	2	40
		% within Major	10.2%	6.6%	8.9%	8.0%	8.8%
Total		Count	137	76	214	25	452
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

How often did teamwork assignments have roles (either student assigned or instructor assigned) for team members?

Q06 * Major Crosstabulation

			Major				
			ARCH	ARTS & SCIENCES	ENG	MGMT	Total
Q06	1 - Never	Count	8	7	19	2	36
		% within Major	5.8%	9.2%	8.9%	8.3%	8.0%
	2 - Almost never	Count	23	18	51	3	95
		% within Major	16.8%	23.7%	23.9%	12.5%	21.1%
	3 - Half of the time	Count	45	26	67	6	144
		% within Major	32.8%	34.2%	31.5%	25.0%	32.0%
	4 - Most of the time	Count	47	20	48	9	124
		% within Major	34.3%	26.3%	22.5%	37.5%	27.6%
	5 - Always	Count	14	5	28	4	51
		% within Major	10.2%	6.6%	13.1%	16.7%	11.3%
Total		Count	137	76	213	24	450
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

If team roles were assigned, how often were responsibilities associated with those roles communicated?

Q07 * Major Crosstabulation

			Major				
			ARCH	ARTS & SCIENCES	ENG	MGMT	Total
Q07	1 - Never	Count	9	12	20	3	44
		% within Major	6.8%	16.2%	9.6%	13.0%	10.0%
	2 - Almost never	Count	34	19	52	3	108
		% within Major	25.6%	25.7%	25.0%	13.0%	24.7%
	3 - Half of the time	Count	38	18	55	6	117
		% within Major	28.6%	24.3%	26.4%	26.1%	26.7%
	4 - Most of the time	Count	37	17	58	7	119
		% within Major	27.8%	23.0%	27.9%	30.4%	27.2%
	5 - Always	Count	15	8	23	4	50
		% within Major	11.3%	10.8%	11.1%	17.4%	11.4%
Total		Count	133	74	208	23	438
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

How often did your team focus on a common goal or a single project?

Q08 * Major Crosstabulation

			Major				
			ARCH	ARTS & SCIENCES	ENG	MGMT	Total
Q08	1 - Never	Count	0	0	6	0	6
		% within Major	.0%	.0%	2.9%	.0%	1.3%
	2 - Almost never	Count	1	1	4	0	6
		% within Major	.7%	1.3%	1.9%	.0%	1.3%
	3 - Half of the time	Count	29	17	36	7	89
		% within Major	21.2%	22.7%	17.1%	29.2%	20.0%
	4 - Most of the time	Count	65	36	100	14	215
		% within Major	47.4%	48.0%	47.6%	58.3%	48.2%
	5 - Always	Count	42	21	64	3	130
		% within Major	30.7%	28.0%	30.5%	12.5%	29.1%
Total		Count	137	75	210	24	446
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

How often were you required to evaluate your team members as a component of the team process?

Q09 * Major Crosstabulation

			Major				
			ARCH	ARTS & SCIENCES	ENG	MGMT	Total
Q09	1 - Never	Count	14	5	22	0	41
		% within Major	10.1%	6.7%	10.2%	.0%	9.1%
	2 - Almost never	Count	37	11	39	3	90
		% within Major	26.8%	14.7%	18.1%	12.0%	19.9%
	3 - Half of the time	Count	41	32	54	6	133
		% within Major	29.7%	42.7%	25.1%	24.0%	29.4%
	4 - Most of the time	Count	26	20	59	10	115
		% within Major	18.8%	26.7%	27.4%	40.0%	25.4%
	5 - Always	Count	20	7	41	6	74
		% within Major	14.5%	9.3%	19.1%	24.0%	16.3%
Total		Count	138	75	215	25	453
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

How often did team members take responsibility for their work and contributions to the team?

Q10 * Major Crosstabulation

			Major				Total
			ARCH	ARTS & SCIENCES	ENG	MGMT	
Q10	1 - Never	Count	1	1	7	0	9
		% within Major	.7%	1.3%	3.3%	.0%	2.0%
	2 - Almost never	Count	10	12	12	2	36
		% within Major	7.2%	15.8%	5.6%	8.0%	8.0%
	3 - Half of the time	Count	35	23	52	10	120
		% within Major	25.4%	30.3%	24.4%	40.0%	26.5%
	4 - Most of the time	Count	73	33	109	10	225
		% within Major	52.9%	43.4%	51.2%	40.0%	49.8%
	5 - Always	Count	19	7	33	3	62
		% within Major	13.8%	9.2%	15.5%	12.0%	13.7%
Total		Count	138	76	213	25	452
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

How often did members of the team communicate and resolve conflict in a respectful manner?

Q11 * Major Crosstabulation

			Major				Total
			ARCH	ARTS & SCIENCES	ENG	MGMT	
Q11	1 - Never	Count	2	1	3	0	6
		% within Major	1.4%	1.3%	1.4%	.0%	1.3%
	2 - Almost never	Count	2	7	11	1	21
		% within Major	1.4%	9.3%	5.1%	4.0%	4.6%
	3 - Half of the time	Count	31	12	28	10	81
		% within Major	22.5%	16.0%	13.0%	40.0%	17.9%
	4 - Most of the time	Count	67	41	114	5	227
		% within Major	48.6%	54.7%	53.0%	20.0%	50.1%
	5 - Always	Count	36	14	59	9	118
		% within Major	26.1%	18.7%	27.4%	36.0%	26.0%
Total		Count	138	75	215	25	453
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

How often did all team members of the team participate in decision making with no single team member dominating?

Q12 * Major Crosstabulation

			Major				
			ARCH	ARTS & SCIENCES	ENG	MGMT	Total
Q12	1 - Never	Count	3	3	8	0	14
		% within Major	2.2%	3.9%	3.7%	.0%	3.1%
	2 - Almost never	Count	16	14	21	2	53
		% within Major	11.7%	18.4%	9.8%	8.3%	11.7%
	3 - Half of the time	Count	51	26	65	9	151
		% within Major	37.2%	34.2%	30.2%	37.5%	33.4%
	4 - Most of the time	Count	51	27	89	9	176
		% within Major	37.2%	35.5%	41.4%	37.5%	38.9%
	5 - Always	Count	16	6	32	4	58
		% within Major	11.7%	7.9%	14.9%	16.7%	12.8%
Total		Count	137	76	215	24	452
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

Section 3 – Constructive Teamwork Experiences

I enjoy working on team assignments in my courses at Lawrence Tech because: Teamwork skills are crucial in my field.

Q13A * Major Crosstabulation

			Major				
			ARCH	ARTS & SCIENCES	ENG	MGMT	Total
Q13A	1 - STRONGLY DISAGREE	Count	1	2	2	0	5
		% within Major	.7%	2.6%	.9%	.0%	1.1%
	2 - DISAGREE	Count	3	2	1	1	7
		% within Major	2.1%	2.6%	.5%	4.0%	1.5%
	3 - NEUTRAL	Count	4	15	23	6	48
		% within Major	2.9%	19.7%	10.6%	24.0%	10.5%
	4 - AGREE	Count	45	26	76	9	156
		% within Major	32.1%	34.2%	35.2%	36.0%	34.1%
	5 - STRONGLY AGREE	Count	87	31	114	9	241
		% within Major	62.1%	40.8%	52.8%	36.0%	52.7%
Total		Count	140	76	216	25	457
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

I was exposed to new methods for interpersonal interaction.

Q13B * Major Crosstabulation

			Major				
			ARCH	ARTS & SCIENCES	ENG	MGMT	Total
Q13B	1 - STRONGLY DISAGREE	Count	5	5	11	1	22
		% within Major	3.6%	6.6%	5.1%	4.0%	4.8%
	2 - DISAGREE	Count	19	13	27	3	62
		% within Major	13.7%	17.1%	12.6%	12.0%	13.7%
	3 - NEUTRAL	Count	42	21	61	9	133
		% within Major	30.2%	27.6%	28.5%	36.0%	29.3%
	4 - AGREE	Count	54	29	87	9	179
		% within Major	38.8%	38.2%	40.7%	36.0%	39.4%
	5 - STRONGLY AGREE	Count	19	8	28	3	58
		% within Major	13.7%	10.5%	13.1%	12.0%	12.8%
Total		Count	139	76	214	25	454
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

It will help me be a better citizen.

Q13C * Major Crosstabulation

			Major				
			ARCH	ARTS & SCIENCES	ENG	MGMT	Total
Q13C	1 - STRONGLY DISAGREE	Count	6	4	15	3	28
		% within Major	4.3%	5.3%	7.0%	12.0%	6.2%
	2 - DISAGREE	Count	11	10	19	3	43
		% within Major	8.0%	13.2%	8.9%	12.0%	9.5%
	3 - NEUTRAL	Count	47	32	63	9	151
		% within Major	34.1%	42.1%	29.4%	36.0%	33.3%
	4 - AGREE	Count	47	19	78	8	152
		% within Major	34.1%	25.0%	36.4%	32.0%	33.6%
	5 - STRONGLY AGREE	Count	27	11	39	2	79
		% within Major	19.6%	14.5%	18.2%	8.0%	17.4%
Total		Count	138	76	214	25	453
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

I understand myself better by my interaction with other students.

Q13D * Major Crosstabulation

			Major				
			ARCH	ARTS & SCIENCES	ENG	MGMT	Total
Q13D	1 - STRONGLY DISAGREE	Count	7	8	12	1	28
		% within Major	5.0%	10.7%	5.6%	4.2%	6.2%
	2 - DISAGREE	Count	20	11	22	2	55
		% within Major	14.4%	14.7%	10.3%	8.3%	12.2%
	3 - NEUTRAL	Count	32	27	63	6	128
		% within Major	23.0%	36.0%	29.6%	25.0%	28.4%
	4 - AGREE	Count	57	19	79	14	169
		% within Major	41.0%	25.3%	37.1%	58.3%	37.5%
	5 - STRONGLY AGREE	Count	23	10	37	1	71
		% within Major	16.5%	13.3%	17.4%	4.2%	15.7%
Total		Count	139	75	213	24	451
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

I recognize the positive outcomes of working cooperatively.

Q13E * Major Crosstabulation

			Major				Total
			ARCH	ARTS & SCIENCES	ENG	MGMT	
Q13E	1 - STRONGLY DISAGREE	Count	1	2	5	0	8
		% within Major	.7%	2.7%	2.4%	.0%	1.8%
	2 - DISAGREE	Count	3	2	5	0	10
		% within Major	2.1%	2.7%	2.4%	.0%	2.2%
	3 - NEUTRAL	Count	16	12	27	3	58
		% within Major	11.4%	16.0%	12.7%	12.5%	12.9%
	4 - AGREE	Count	74	41	107	15	237
		% within Major	52.9%	54.7%	50.5%	62.5%	52.5%
	5 - STRONGLY AGREE	Count	46	18	68	6	138
		% within Major	32.9%	24.0%	32.1%	25.0%	30.6%
Total		Count	140	75	212	24	451
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

I have forged close relationships with my team members.

Q13F * Major Crosstabulation

			Major				Total
			ARCH	ARTS & SCIENCES	ENG	MGMT	
Q13F	1 - STRONGLY DISAGREE	Count	4	3	8	0	15
		% within Major	2.9%	3.9%	3.8%	.0%	3.3%
	2 - DISAGREE	Count	17	12	23	7	59
		% within Major	12.1%	15.8%	10.8%	29.2%	13.0%
	3 - NEUTRAL	Count	58	29	64	8	159
		% within Major	41.4%	38.2%	30.0%	33.3%	35.1%
	4 - AGREE	Count	38	19	83	7	147
		% within Major	27.1%	25.0%	39.0%	29.2%	32.5%
	5 - STRONGLY AGREE	Count	23	13	35	2	73
		% within Major	16.4%	17.1%	16.4%	8.3%	16.1%
Total		Count	140	76	213	24	453
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

I feel safe and supported in a team environment.

Q13G * Major Crosstabulation

			Major				
			ARCH	ARTS & SCIENCES	ENG	MGMT	Total
Q13G	1 - STRONGLY DISAGREE	Count	4	4	9	0	17
		% within Major	2.9%	5.3%	4.2%	.0%	3.7%
	2 - DISAGREE	Count	14	15	13	5	47
		% within Major	10.0%	19.7%	6.1%	20.8%	10.4%
	3 - NEUTRAL	Count	57	34	72	9	172
		% within Major	40.7%	44.7%	33.6%	37.5%	37.9%
	4 - AGREE	Count	48	14	89	8	159
		% within Major	34.3%	18.4%	41.6%	33.3%	35.0%
	5 - STRONGLY AGREE	Count	17	9	31	2	59
		% within Major	12.1%	11.8%	14.5%	8.3%	13.0%
Total		Count	140	76	214	24	454
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

It is clear to me why working on teams is critical to my education.

Q13H * Major Crosstabulation

			Major				
			ARCH	ARTS & SCIENCES	ENG	MGMT	Total
Q13H	1 - STRONGLY DISAGREE	Count	3	3	5	0	11
		% within Major	2.1%	3.9%	2.3%	.0%	2.4%
	2 - DISAGREE	Count	5	6	10	1	22
		% within Major	3.6%	7.9%	4.7%	4.2%	4.9%
	3 - NEUTRAL	Count	18	22	26	6	72
		% within Major	12.9%	28.9%	12.2%	25.0%	15.9%
	4 - AGREE	Count	70	29	99	5	203
		% within Major	50.0%	38.2%	46.5%	20.8%	44.8%
	5 - STRONGLY AGREE	Count	44	16	73	12	145
		% within Major	31.4%	21.1%	34.3%	50.0%	32.0%
Total		Count	140	76	213	24	453
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

Section 4 – Negative Teamwork Experiences

The negative aspects with teamwork at Lawrence Tech are: Competition within group for better grades.

Q14A * Major Crosstabulation

			Major				
			ARCH	ARTS & SCIENCES	ENG	MGMT	Total
Q14A	1 - STRONGLY DISAGREE	Count	15	17	33	4	69
		% within Major	10.6%	22.1%	15.2%	16.7%	15.0%
	2 - DISAGREE	Count	45	32	72	11	160
		% within Major	31.9%	41.6%	33.2%	45.8%	34.9%
	3 - NEUTRAL	Count	55	18	67	6	146
		% within Major	39.0%	23.4%	30.9%	25.0%	31.8%
	4 - AGREE	Count	21	9	33	2	65
		% within Major	14.9%	11.7%	15.2%	8.3%	14.2%
	5 - STRONGLY AGREE	Count	5	1	12	1	19
		% within Major	3.5%	1.3%	5.5%	4.2%	4.1%
Total		Count	141	77	217	24	459
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

Personal ego of team members dominates over cooperation.

Q14B * Major Crosstabulation

			Major				
			ARCH	ARTS & SCIENCES	ENG	MGMT	Total
Q14B	1 - STRONGLY DISAGREE	Count	5	6	16	2	29
		% within Major	3.5%	7.8%	7.4%	8.3%	6.3%
	2 - DISAGREE	Count	43	23	60	8	134
		% within Major	30.5%	29.9%	27.6%	33.3%	29.2%
	3 - NEUTRAL	Count	40	25	75	9	149
		% within Major	28.4%	32.5%	34.6%	37.5%	32.5%
	4 - AGREE	Count	40	19	50	3	112
		% within Major	28.4%	24.7%	23.0%	12.5%	24.4%
	5 - STRONGLY AGREE	Count	13	4	16	2	35
		% within Major	9.2%	5.2%	7.4%	8.3%	7.6%
Total		Count	141	77	217	24	459
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

Focus on the problem-solving outcome only and not the educational experience.

Q14C * Major Crosstabulation

			Major				
			ARCH	ARTS & SCIENCES	ENG	MGMT	Total
Q14C	1 - STRONGLY DISAGREE	Count	3	3	9	2	17
		% within Major	2.1%	3.9%	4.2%	8.3%	3.7%
	2 - DISAGREE	Count	30	22	34	4	90
		% within Major	21.3%	28.6%	15.8%	16.7%	19.7%
	3 - NEUTRAL	Count	62	22	85	11	180
		% within Major	44.0%	28.6%	39.5%	45.8%	39.4%
	4 - AGREE	Count	35	23	67	6	131
		% within Major	24.8%	29.9%	31.2%	25.0%	28.7%
	5 - STRONGLY AGREE	Count	11	7	20	1	39
		% within Major	7.8%	9.1%	9.3%	4.2%	8.5%
Total		Count	141	77	215	24	457
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

Lack of bonding with team members.

Q14D * Major Crosstabulation

			Major				
			ARCH	ARTS & SCIENCES	ENG	MGMT	Total
Q14D	1 - STRONGLY DISAGREE	Count	9	8	9	1	27
		% within Major	6.4%	10.4%	4.2%	4.3%	5.9%
	2 - DISAGREE	Count	42	28	61	5	136
		% within Major	30.0%	36.4%	28.2%	21.7%	29.8%
	3 - NEUTRAL	Count	56	18	86	8	168
		% within Major	40.0%	23.4%	39.8%	34.8%	36.8%
	4 - AGREE	Count	28	16	47	7	98
		% within Major	20.0%	20.8%	21.8%	30.4%	21.5%
	5 - STRONGLY AGREE	Count	5	7	13	2	27
		% within Major	3.6%	9.1%	6.0%	8.7%	5.9%
Total		Count	140	77	216	23	456
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

Inability to schedule meeting times.

Q14E * Major Crosstabulation

			Major				Total
			ARCH	ARTS & SCIENCES	ENG	MGMT	
Q14E	ARCH	ARTS & SCIENCES	ENG	MGMT	6	0	16
		% within Major	3.6%	6.6%	2.8%	.0%	3.5%
	2 - DISAGREE	Count	23	18	39	8	88
		% within Major	16.4%	23.7%	18.1%	33.3%	19.3%
	3 - NEUTRAL	Count	44	12	60	5	121
		% within Major	31.4%	15.8%	27.9%	20.8%	26.6%
	4 - AGREE	Count	47	28	75	8	158
		% within Major	33.6%	36.8%	34.9%	33.3%	34.7%
	5 - STRONGLY AGREE	Count	21	13	35	3	72
		% within Major	15.0%	17.1%	16.3%	12.5%	15.8%
Total		Count	140	76	215	24	455
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

Teamwork requires too much effort and time and is not productive.

Q14F * Major Crosstabulation

			Major				Total
			ARCH	ARTS & SCIENCES	ENG	MGMT	
Q14F	1 - STRONGLY DISAGREE	Count	11	7	31	3	52
		% within Major	7.9%	9.1%	14.4%	12.5%	11.4%
	2 - DISAGREE	Count	46	20	80	10	156
		% within Major	33.1%	26.0%	37.2%	41.7%	34.3%
	3 - NEUTRAL	Count	45	22	65	3	135
		% within Major	32.4%	28.6%	30.2%	12.5%	29.7%
	4 - AGREE	Count	25	21	21	5	72
		% within Major	18.0%	27.3%	9.8%	20.8%	15.8%
	5 - STRONGLY AGREE	Count	12	7	18	3	40
		% within Major	8.6%	9.1%	8.4%	12.5%	8.8%
Total		Count	139	77	215	24	455
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

Difficulty in determining individual or group roles and responsibilities.

Q14G * Major Crosstabulation

			Major				
			ARCH	ARTS & SCIENCES	ENG	MGMT	Total
Q14G	1 - STRONGLY DISAGREE	Count	9	4	18	0	31
		% within Major	6.4%	5.2%	8.3%	.0%	6.8%
	2 - DISAGREE	Count	44	25	72	6	147
		% within Major	31.2%	32.5%	33.2%	25.0%	32.0%
	3 - NEUTRAL	Count	55	32	77	7	171
		% within Major	39.0%	41.6%	35.5%	29.2%	37.3%
	4 - AGREE	Count	27	15	35	8	85
		% within Major	19.1%	19.5%	16.1%	33.3%	18.5%
	5 - STRONGLY AGREE	Count	6	1	15	3	25
		% within Major	4.3%	1.3%	6.9%	12.5%	5.4%
Total		Count	141	77	217	24	459
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

Section 5 – Background Teamwork Information

When considering my overall teamwork experiences in courses at Lawrence Tech, I consider my grades on assignments that require teamwork to be:

Q15 * Major Crosstabulation

			Major				
			ARCH	ARTS & SCIENCES	ENG	MGMT	Total
Q15	1 - Mixed opinion	Count	4	1	7	1	13
		% within Major	2.8%	1.3%	3.2%	4.0%	2.8%
	2 - Lower than deserved	Count	28	11	27	4	70
		% within Major	19.9%	14.3%	12.4%	16.0%	15.2%
	3 - Fair	Count	105	61	172	17	355
		% within Major	74.5%	79.2%	79.3%	68.0%	77.2%
	4 - Higher than deserved	Count	4	4	11	3	22
		% within Major	2.8%	5.2%	5.1%	12.0%	4.8%
Total		Count	141	77	217	25	460
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

Overall, your teamwork experiences in courses at Lawrence Tech would best be described as:

Q16 * Major Crosstabulation

			Major				Total
			ARCH	ARTS & SCIENCES	ENG	MGMT	
Q16	1 - Very detrimental	Count	2	4	4	0	10
		% within Major	1.4%	5.3%	1.8%	.0%	2.2%
	2 - Detrimental	Count	9	12	9	3	33
		% within Major	6.4%	15.8%	4.1%	12.0%	7.2%
	3 - Neutral	Count	34	10	43	6	93
		% within Major	24.1%	13.2%	19.8%	24.0%	20.3%
	4 - Beneficial but not necessary	Count	70	38	112	11	231
		% within Major	49.6%	50.0%	51.6%	44.0%	50.3%
	5 - Necessary	Count	26	12	49	5	92
		% within Major	18.4%	15.8%	22.6%	20.0%	20.0%
Total		Count	141	76	217	25	459
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

Your teamwork experiences at Lawrence Tech, with respect to your education, would best be described as:

Q17 * Major Crosstabulation

			Major				Total
			ARCH	ARTS & SCIENCES	ENG	MGMT	
Q17	1 - Very negative	Count	2	4	4	0	10
		% within Major	1.4%	5.3%	1.8%	.0%	2.2%
	2 - Somewhat negative	Count	9	12	9	3	33
		% within Major	6.4%	15.8%	4.1%	12.0%	7.2%
	3 - Neutral	Count	34	10	43	6	93
		% within Major	24.1%	13.2%	19.8%	24.0%	20.3%
	4 - Somewhat positive	Count	70	38	112	11	231
		% within Major	49.6%	50.0%	51.6%	44.0%	50.3%
	5 - Very positive	Count	26	12	49	5	92
		% within Major	18.4%	15.8%	22.6%	20.0%	20.0%
Total		Count	141	76	217	25	459
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

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

Q18 * Major Crosstabulation

			Major				
			ARCH	ARTS & SCIENCES	ENG	MGMT	Total
Q18	1 - No	Count	66	33	100	15	214
		% within Major	47.1%	43.4%	46.5%	60.0%	46.9%
	2 - Yes	Count	74	43	115	10	242
		% within Major	52.9%	56.6%	53.5%	40.0%	53.1%
Total		Count	140	76	215	25	456
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

If you answered yes, how often would you describe the teamwork experience as positive?

Q19 * Major Crosstabulation

			Major				
			ARCH	ARTS & SCIENCES	ENG	MGMT	Total
Q19	1 - Never	Count	1	0	2	0	3
		% within Major	1.3%	.0%	1.6%	.0%	1.1%
	2 - Almost never	Count	0	0	3	1	4
		% within Major	.0%	.0%	2.4%	7.7%	1.5%
	3 - Half of the time	Count	16	8	23	2	49
		% within Major	20.3%	17.0%	18.7%	15.4%	18.7%
	4 - Most of the time	Count	49	25	70	10	154
		% within Major	62.0%	53.2%	56.9%	76.9%	58.8%
	5 - Always	Count	13	14	25	0	52
		% within Major	16.5%	29.8%	20.3%	.0%	19.8%
Total		Count	79	47	123	13	262
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

If you answered yes, your teamwork experiences outside of class at Lawrence Tech, with respect to your education, would best be described as:

Q20 * Major Crosstabulation

			Major				
			ARCH	ARTS & SCIENCES	ENG	MGMT	Total
Q20	2 - Detrimental	Count	1	0	4	1	6
		% within Major	1.3%	.0%	3.4%	8.3%	2.4%
	3 - Neutral	Count	18	12	17	2	49
		% within Major	22.8%	26.1%	14.4%	16.7%	19.2%
	4 - Beneficial but not necessary	Count	39	18	55	5	117
		% within Major	49.4%	39.1%	46.6%	41.7%	45.9%
	5 - Necessary	Count	21	16	42	4	83
		% within Major	26.6%	34.8%	35.6%	33.3%	32.5%
Total		Count	79	46	118	12	255
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

Section 6 – Demographics

Age * Major Crosstabulation

			Major				
			ARCH	ARTS & SCIENCES	ENG	MGMT	Total
Age	8	Count	0	0	0	1	1
		% within Major	.0%	.0%	.0%	4.5%	.2%
	15	Count	1	0	0	0	1
		% within Major	.7%	.0%	.0%	.0%	.2%
	16	Count	1	0	2	0	3
		% within Major	.7%	.0%	.9%	.0%	.7%
	17	Count	0	0	1	0	1
		% within Major	.0%	.0%	.5%	.0%	.2%
	18	Count	7	9	16	0	32
		% within Major	5.0%	11.5%	7.3%	.0%	7.0%
	19	Count	14	12	29	0	55
		% within Major	9.9%	15.4%	13.2%	.0%	12.0%
	20	Count	17	11	25	0	53
		% within Major	12.1%	14.1%	11.4%	.0%	11.5%
	21	Count	27	8	29	3	67
		% within Major	19.1%	10.3%	13.2%	13.6%	14.6%
	22	Count	22	10	29	4	65
		% within Major	15.6%	12.8%	13.2%	18.2%	14.1%
	23	Count	18	10	20	2	50
		% within Major	12.8%	12.8%	9.1%	9.1%	10.9%
	24	Count	6	5	10	1	22
		% within Major	4.3%	6.4%	4.6%	4.5%	4.8%
	25	Count	5	3	11	1	20
		% within Major	3.5%	3.8%	5.0%	4.5%	4.3%
	26	Count	4	2	4	0	10
		% within Major	2.8%	2.6%	1.8%	.0%	2.2%
	27	Count	3	1	6	3	13
		% within Major	2.1%	1.3%	2.7%	13.6%	2.8%
	28	Count	3	1	4	0	8
		% within Major	2.1%	1.3%	1.8%	.0%	1.7%
	29	Count	1	1	2	0	4
		% within Major	.7%	1.3%	.9%	.0%	.9%
	30	Count	1	1	5	0	7
		% within Major	.7%	1.3%	2.3%	.0%	1.5%
	31	Count	3	1	4	2	10
		% within Major	2.1%	1.3%	1.8%	9.1%	2.2%
	32	Count	1	0	2	1	4
		% within Major	.7%	.0%	.9%	4.5%	.9%

	33	Count	2	0	1	1	4
		% within Major	1.4%	.0%	.5%	4.5%	.9%
	34	Count	0	1	2	0	3
		% within Major	.0%	1.3%	.9%	.0%	.7%
	35	Count	0	0	2	0	2
		% within Major	.0%	.0%	.9%	.0%	.4%
	36	Count	1	0	1	0	2
		% within Major	.7%	.0%	.5%	.0%	.4%
	37	Count	1	0	0	0	1
		% within Major	.7%	.0%	.0%	.0%	.2%
	38	Count	2	0	0	1	3
		% within Major	1.4%	.0%	.0%	4.5%	.7%
	39	Count	0	0	1	0	1
		% within Major	.0%	.0%	.5%	.0%	.2%
	41	Count	0	1	1	0	2
		% within Major	.0%	1.3%	.5%	.0%	.4%
	42	Count	1	0	0	0	1
		% within Major	.7%	.0%	.0%	.0%	.2%
	43	Count	0	0	1	0	1
		% within Major	.0%	.0%	.5%	.0%	.2%
	44	Count	0	0	1	0	1
		% within Major	.0%	.0%	.5%	.0%	.2%
	45	Count	0	0	2	1	3
		% within Major	.0%	.0%	.9%	4.5%	.7%
	46	Count	0	0	1	0	1
		% within Major	.0%	.0%	.5%	.0%	.2%
	49	Count	0	0	2	0	2
		% within Major	.0%	.0%	.9%	.0%	.4%
	50	Count	0	0	1	0	1
		% within Major	.0%	.0%	.5%	.0%	.2%
	51	Count	0	0	0	1	1
		% within Major	.0%	.0%	.0%	4.5%	.2%
	53	Count	0	0	1	0	1
		% within Major	.0%	.0%	.5%	.0%	.2%
	55	Count	0	0	2	0	2
		% within Major	.0%	.0%	.9%	.0%	.4%
	56	Count	0	0	1	0	1
		% within Major	.0%	.0%	.5%	.0%	.2%
	59	Count	0	1	0	0	1
		% within Major	.0%	1.3%	.0%	.0%	.2%
Total		Count	141	78	219	22	460
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

Gender * Major Crosstabulation

			Major				
			ARCH	ARTS & SCIENCES	ENG	MGMT	Total
Gender	1 - FEMALE	Count	49	21	24	6	100
		% within Major	34.0%	25.9%	10.6%	26.1%	21.1%
	2 - MALE	Count	95	60	202	17	374
		% within Major	66.0%	74.1%	89.4%	73.9%	78.9%
Total		Count	144	81	226	23	474
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

Class * Major Crosstabulation

			Major				
			ARCH	ARTS & SCIENCES	ENG	MGMT	Total
Class	FRESHMAN	Count	19	19	56	1	95
		% within Major	13.1%	23.5%	24.7%	4.0%	19.9%
	SOPHOMORE	Count	48	16	46	1	111
		% within Major	33.1%	19.8%	20.3%	4.0%	23.2%
	JUNIOR	Count	32	24	52	9	117
		% within Major	22.1%	29.6%	22.9%	36.0%	24.5%
	SENIOR	Count	46	22	73	14	155
		% within Major	31.7%	27.2%	32.2%	56.0%	32.4%
Total		Count	145	81	227	25	478
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

GPA * Major Crosstabulation

			Major				Total
			ARCH	ARTS & SCIENCES	ENG	MGMT	
GPA	.0	Count	0	1	0	0	1
		% within Major	.0%	1.3%	.0%	.0%	.2%
	.2	Count	1	0	0	0	1
		% within Major	.7%	.0%	.0%	.0%	.2%
	.4	Count	0	2	3	0	5
		% within Major	.0%	2.6%	1.5%	.0%	1.1%
	.5	Count	1	0	0	0	1
		% within Major	.7%	.0%	.0%	.0%	.2%
	.8	Count	0	1	0	0	1
		% within Major	.0%	1.3%	.0%	.0%	.2%
	1.4	Count	0	0	1	0	1
		% within Major	.0%	.0%	.5%	.0%	.2%
	1.9	Count	2	0	4	0	6
		% within Major	1.4%	.0%	1.9%	.0%	1.4%
	2.0	Count	0	3	6	0	9
		% within Major	.0%	3.9%	2.9%	.0%	2.0%
	2.1	Count	0	0	3	0	3
		% within Major	.0%	.0%	1.5%	.0%	.7%
	2.2	Count	2	0	5	2	9
		% within Major	1.4%	.0%	2.4%	10.5%	2.0%
	2.3	Count	1	1	2	0	4
		% within Major	.7%	1.3%	1.0%	.0%	.9%
	2.4	Count	0	0	3	0	3
		% within Major	.0%	.0%	1.5%	.0%	.7%
	2.5	Count	3	2	11	2	18
		% within Major	2.1%	2.6%	5.3%	10.5%	4.1%
	2.6	Count	3	0	5	0	8
		% within Major	2.1%	.0%	2.4%	.0%	1.8%
	2.7	Count	2	3	7	1	13
		% within Major	1.4%	3.9%	3.4%	5.3%	2.9%
	2.8	Count	7	0	6	1	14
		% within Major	5.0%	.0%	2.9%	5.3%	3.2%
	2.9	Count	7	4	11	1	23
		% within Major	5.0%	5.2%	5.3%	5.3%	5.2%
	3.0	Count	23	7	23	0	53
		% within Major	16.4%	9.1%	11.2%	.0%	12.0%
	3.1	Count	8	3	10	1	22
		% within Major	5.7%	3.9%	4.9%	5.3%	5.0%
	3.2	Count	11	4	14	1	30
		% within Major	7.9%	5.2%	6.8%	5.3%	6.8%

	3.3	Count	13	4	12	2	31
		% within Major	9.3%	5.2%	5.8%	10.5%	7.0%
	3.4	Count	11	4	15	1	31
		% within Major	7.9%	5.2%	7.3%	5.3%	7.0%
	3.5	Count	17	7	13	4	41
		% within Major	12.1%	9.1%	6.3%	21.1%	9.3%
	3.6	Count	6	3	13	1	23
		% within Major	4.3%	3.9%	6.3%	5.3%	5.2%
	3.7	Count	8	8	9	0	25
		% within Major	5.7%	10.4%	4.4%	.0%	5.7%
	3.8	Count	10	9	17	1	37
		% within Major	7.1%	11.7%	8.3%	5.3%	8.4%
	3.9	Count	4	8	7	0	19
		% within Major	2.9%	10.4%	3.4%	.0%	4.3%
	4.0	Count	0	3	5	1	9
		% within Major	.0%	3.9%	2.4%	5.3%	2.0%
	4.4	Count	0	0	1	0	1
		% within Major	.0%	.0%	.5%	.0%	.2%
Total		Count	140	77	206	19	442
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

Black * Major Crosstabulation

			Major				
			ARCH	ARTS & SCIENCES	ENG	MGMT	Total
Black	1 - NO	Count	141	76	218	24	459
		% within Major	97.2%	93.8%	96.0%	96.0%	96.0%
	2 - YES	Count	4	5	9	1	19
		% within Major	2.8%	6.2%	4.0%	4.0%	4.0%
Total		Count	145	81	227	25	478
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

Asian * Major Crosstabulation

			Major				
			ARCH	ARTS & SCIENCES	ENG	MGMT	Total
Asian	1 - NO	Count	135	70	209	17	431
		% within Major	93.1%	86.4%	92.1%	68.0%	90.2%
	2 - YES	Count	10	11	18	8	47
		% within Major	6.9%	13.6%	7.9%	32.0%	9.8%
Total		Count	145	81	227	25	478
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

Hispanic * Major Crosstabulation

			Major				
			ARCH	ARTS & SCIENCES	ENG	MGMT	Total
Hispanic	1 - NO	Count	128	73	205	22	428
		% within Major	88.3%	90.1%	90.3%	88.0%	89.5%
	2 - YES	Count	17	8	22	3	50
		% within Major	11.7%	9.9%	9.7%	12.0%	10.5%
Total		Count	145	81	227	25	478
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

Native * Major Crosstabulation

			Major				
			ARCH	ARTS & SCIENCES	ENG	MGMT	Total
Native	1 - NO	Count	142	76	222	25	465
		% within Major	97.9%	93.8%	97.8%	100.0%	97.3%
	2 - YES	Count	3	5	5	0	13
		% within Major	2.1%	6.2%	2.2%	.0%	2.7%
Total		Count	145	81	227	25	478
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

White * Major Crosstabulation

			Major				
			ARCH	ARTS & SCIENCES	ENG	MGMT	Total
White	1 - NO	Count	22	17	48	13	100
		% within Major	15.2%	21.0%	21.1%	52.0%	20.9%
	2 - YES	Count	123	64	179	12	378
		% within Major	84.8%	79.0%	78.9%	48.0%	79.1%
Total		Count	145	81	227	25	478
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

How would you categorize the time of your course selection?

Q21G * Major Crosstabulation

			Major				
			ARCH	ARTS & SCIENCES	ENG	MGMT	Total
Q21G	1 - MAJORITY BEFORE 5 PM	Count	71	24	64	2	161
		% within Major	49.0%	29.6%	28.6%	8.0%	33.9%
	2 - MAJORITY AFTER 5 PM	Count	23	22	88	16	149
		% within Major	15.9%	27.2%	39.3%	64.0%	31.4%
	3 - EVEN DISTRIBUTION	Count	51	35	72	7	165
		% within Major	35.2%	43.2%	32.1%	28.0%	34.7%
Total		Count	145	81	224	25	475
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

Did you transfer into Lawrence Tech from another school?

Q21H * Major Crosstabulation

			Major				
			ARCH	ARTS & SCIENCES	ENG	MGMT	Total
Q21H	1 - NO	Count	58	56	141	12	267
		% within Major	40.0%	70.0%	63.5%	48.0%	56.6%
	2 - TRANSFERED FROM 2-YEAR COLLEGE	Count	64	17	61	7	149
		% within Major	44.1%	21.3%	27.5%	28.0%	31.6%
	3 - TRANSFERRED FROM 4-YEAR COLLEGE	Count	23	7	20	6	56
		% within Major	15.9%	8.8%	9.0%	24.0%	11.9%
Total		Count	145	80	222	25	472
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

If you transferred into Lawrence Tech from another school, approximately how many hours did you transfer?

Q21I * Major Crosstabulation

			Major				
			ARCH	ARTS & SCIENCES	ENG	MGMT	Total
Q21I	1 - 1 TO 14 HOURS	Count	21	3	23	1	48
		% within Major	24.4%	12.0%	26.7%	7.1%	22.7%
	2 - 15 TO 29 HOURS	Count	27	5	27	3	62
		% within Major	31.4%	20.0%	31.4%	21.4%	29.4%
	3 - 30 TO 59 HOURS	Count	32	14	25	6	77
		% within Major	37.2%	56.0%	29.1%	42.9%	36.5%
	4 - MORE THAN 60 HOURS	Count	6	3	11	4	24
		% within Major	7.0%	12.0%	12.8%	28.6%	11.4%
Total		Count	86	25	86	14	211
		% within Major	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix C

Student Responses by Class Level Section 1 – Teamwork Background

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

Q01 * Class Crosstabulation

			Class				
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	Total
Q01	0	Count	6	8	2	3	19
		% within Class	5.8%	6.6%	1.6%	1.8%	3.6%
	1 to 2	Count	27	32	14	13	86
		% within Class	26.2%	26.2%	11.1%	7.6%	16.5%
	3 to 5	Count	49	42	61	46	198
		% within Class	47.6%	34.4%	48.4%	26.9%	37.9%
	6 to 10	Count	17	32	35	61	145
		% within Class	16.5%	26.2%	27.8%	35.7%	27.8%
	11 or more	Count	4	8	14	48	74
		% within Class	3.9%	6.6%	11.1%	28.1%	14.2%
Total		Count	103	122	126	171	522
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

What is the AVERAGE length of these team assignments?

Q02 * Class Crosstabulation

			Class				
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	Total
Q02	< 1 week	Count	17	15	16	10	58
		% within Class	17.3%	13.0%	12.9%	5.9%	11.5%
	1 to 3 weeks	Count	66	80	74	81	301
		% within Class	67.3%	69.6%	59.7%	47.9%	59.5%
	4 to 6 weeks	Count	12	8	20	35	75
		% within Class	12.2%	7.0%	16.1%	20.7%	14.8%
	7 to 9 weeks	Count	1	3	11	24	39
		% within Class	1.0%	2.6%	8.9%	14.2%	7.7%
	10 to 12 weeks	Count	2	1	2	12	17
		% within Class	2.0%	.9%	1.6%	7.1%	3.4%
	13 to 15 weeks	Count	0	8	1	7	16
		% within Class	.0%	7.0%	.8%	4.1%	3.2%
Total		Count	98	115	124	169	506
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

What was the PRIMARY way that teams were assigned in the classes?

Q03 * Class Crosstabulation

			Class				
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	Total
Q03	By students or self selected	Count	42	59	70	121	292
		% within Class	45.2%	51.8%	57.4%	72.5%	58.9%
	By instructor without explanation	Count	31	38	30	22	121
		% within Class	33.3%	33.3%	24.6%	13.2%	24.4%
	By instructor based on personality or skills	Count	7	6	9	11	33
		% within Class	7.5%	5.3%	7.4%	6.6%	6.7%
	By instructor based on schedules	Count	1	5	1	5	12
		% within Class	1.1%	4.4%	.8%	3.0%	2.4%
	By instructor based on both	Count	6	4	5	2	17
		% within Class	6.5%	3.5%	4.1%	1.2%	3.4%
	Other	Count	6	2	7	6	21
		% within Class	6.5%	1.8%	5.7%	3.6%	4.2%
Total		Count	93	114	122	167	496
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

Section 2 – Team Process and Progress

How often did the instructor monitor the teamwork process and team progress?

Q04 * Class Crosstabulation

			Class				
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	Total
Q04	1 - Never	Count	5	5	7	3	20
		% within Class	5.2%	4.4%	5.8%	1.8%	4.0%
	2 - Almost never	Count	23	21	31	43	118
		% within Class	24.0%	18.4%	25.6%	25.7%	23.7%
	3 - Half of the time	Count	39	46	42	57	184
		% within Class	40.6%	40.4%	34.7%	34.1%	36.9%
	4 - Most of the time	Count	26	31	40	50	147
		% within Class	27.1%	27.2%	33.1%	29.9%	29.5%
	5 - Always	Count	3	11	1	14	29
		% within Class	3.1%	9.6%	.8%	8.4%	5.8%
Total		Count	96	114	121	167	498
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

How often did instructor provide guidance or instructions on how team members should work together before starting the assignment/project?

Q05 * Class Crosstabulation

			Class				
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	Total
Q05	1 - Never	Count	5	6	5	9	25
		% within Class	5.2%	5.4%	4.1%	5.4%	5.0%
	2 - Almost never	Count	19	16	22	40	97
		% within Class	19.8%	14.3%	18.0%	24.0%	19.5%
	3 - Half of the time	Count	34	38	41	47	160
		% within Class	35.4%	33.9%	33.6%	28.1%	32.2%
	4 - Most of the time	Count	29	41	47	58	175
		% within Class	30.2%	36.6%	38.5%	34.7%	35.2%
	5 - Always	Count	9	11	7	13	40
		% within Class	9.4%	9.8%	5.7%	7.8%	8.0%
Total		Count	96	112	122	167	497
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

How often did teamwork assignments have roles (either student assigned or instructor assigned) for team members?

Q06 * Class Crosstabulation

			Class				
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	Total
Q06	1 - Never	Count	9	13	8	11	41
		% within Class	9.4%	11.6%	6.6%	6.6%	8.3%
	2 - Almost never	Count	24	20	29	35	108
		% within Class	25.0%	17.9%	24.0%	21.1%	21.8%
	3 - Half of the time	Count	30	26	47	56	159
		% within Class	31.3%	23.2%	38.8%	33.7%	32.1%
	4 - Most of the time	Count	18	37	27	49	131
		% within Class	18.8%	33.0%	22.3%	29.5%	26.5%
	5 - Always	Count	15	16	10	15	56
		% within Class	15.6%	14.3%	8.3%	9.0%	11.3%
Total		Count	96	112	121	166	495
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

If team roles were assigned, how often were responsibilities associated with those roles communicated?

Q07 * Class Crosstabulation

			Class				
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	Total
Q07	1 - Never	Count	7	12	13	19	51
		% within Class	7.5%	11.0%	11.1%	11.9%	10.7%
	2 - Almost never	Count	25	26	27	40	118
		% within Class	26.9%	23.9%	23.1%	25.2%	24.7%
	3 - Half of the time	Count	23	27	36	42	128
		% within Class	24.7%	24.8%	30.8%	26.4%	26.8%
	4 - Most of the time	Count	28	29	33	40	130
		% within Class	30.1%	26.6%	28.2%	25.2%	27.2%
	5 - Always	Count	10	15	8	18	51
		% within Class	10.8%	13.8%	6.8%	11.3%	10.7%
Total		Count	93	109	117	159	478
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

How often did your team focus on a common goal or a single project?

Q08 * Class Crosstabulation

			Class				
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	Total
Q08	1 - Never	Count	2	0	4	1	7
		% within Class	2.1%	.0%	3.3%	.6%	1.4%
	2 - Almost never	Count	3	1	2	1	7
		% within Class	3.2%	.9%	1.7%	.6%	1.4%
	3 - Half of the time	Count	8	24	26	37	95
		% within Class	8.5%	21.4%	21.7%	22.6%	19.4%
	4 - Most of the time	Count	50	40	59	89	238
		% within Class	53.2%	35.7%	49.2%	54.3%	48.6%
	5 - Always	Count	31	47	29	36	143
		% within Class	33.0%	42.0%	24.2%	22.0%	29.2%
Total		Count	94	112	120	164	490
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

How often were you required to evaluate your team members as a component of the team process?

Q09 * Class Crosstabulation

			Class				
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	Total
Q09	1 - Never	Count	5	12	17	9	43
		% within Class	5.3%	10.4%	13.9%	5.4%	8.6%
	2 - Almost never	Count	13	18	28	44	103
		% within Class	13.7%	15.7%	23.0%	26.5%	20.7%
	3 - Half of the time	Count	25	33	36	57	151
		% within Class	26.3%	28.7%	29.5%	34.3%	30.3%
	4 - Most of the time	Count	33	28	29	33	123
		% within Class	34.7%	24.3%	23.8%	19.9%	24.7%
	5 - Always	Count	19	24	12	23	78
		% within Class	20.0%	20.9%	9.8%	13.9%	15.7%
Total		Count	95	115	122	166	498
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

How often did team members take responsibility for their work and contributions to the team?

Q10 * Class Crosstabulation

			Class				
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	Total
Q10	1 - Never	Count	2	2	4	2	10
		% within Class	2.1%	1.8%	3.3%	1.2%	2.0%
	2 - Almost never	Count	7	5	14	13	39
		% within Class	7.3%	4.4%	11.5%	7.9%	7.8%
	3 - Half of the time	Count	17	34	30	50	131
		% within Class	17.7%	29.8%	24.6%	30.3%	26.4%
	4 - Most of the time	Count	50	54	61	86	251
		% within Class	52.1%	47.4%	50.0%	52.1%	50.5%
	5 - Always	Count	20	19	13	14	66
		% within Class	20.8%	16.7%	10.7%	8.5%	13.3%
Total		Count	96	114	122	165	497
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

How often did members of the team communicate and resolve conflict in a respectful manner?

Q11 * Class Crosstabulation

			Class				
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	Total
Q11	1 - Never	Count	1	2	3	1	7
		% within Class	1.0%	1.7%	2.5%	.6%	1.4%
	2 - Almost never	Count	4	5	9	8	26
		% within Class	4.2%	4.3%	7.4%	4.8%	5.2%
	3 - Half of the time	Count	13	22	24	30	89
		% within Class	13.5%	19.1%	19.8%	18.1%	17.9%
	4 - Most of the time	Count	48	55	56	90	249
		% within Class	50.0%	47.8%	46.3%	54.2%	50.0%
	5 - Always	Count	30	31	29	37	127
		% within Class	31.3%	27.0%	24.0%	22.3%	25.5%
Total		Count	96	115	121	166	498
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

How often did all team members of the team participate in decision making with no single team member dominating?

Q12 * Class Crosstabulation

			Class				
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	Total
Q12	1 - Never	Count	3	2	7	4	16
		% within Class	3.1%	1.8%	5.8%	2.4%	3.2%
	2 - Almost never	Count	10	14	15	25	64
		% within Class	10.4%	12.4%	12.4%	15.0%	12.9%
	3 - Half of the time	Count	27	38	43	56	164
		% within Class	28.1%	33.6%	35.5%	33.5%	33.0%
	4 - Most of the time	Count	40	41	42	69	192
		% within Class	41.7%	36.3%	34.7%	41.3%	38.6%
	5 - Always	Count	16	18	14	13	61
		% within Class	16.7%	15.9%	11.6%	7.8%	12.3%
Total		Count	96	113	121	167	497
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

Section 3 – Constructive Teamwork Experiences

I enjoy working on team assignments in my courses at Lawrence Tech because: Teamwork skills are crucial in my field.

Q13A * Class Crosstabulation

			Class				
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	Total
Q13A	1 - STRONGLY DISAGREE	Count	1	2	1	1	5
		% within Class	1.0%	1.8%	.8%	.6%	1.0%
	2 - DISAGREE	Count	4	1	2	0	7
		% within Class	4.1%	.9%	1.6%	.0%	1.4%
	3 - NEUTRAL	Count	14	9	16	15	54
		% within Class	14.4%	7.9%	13.0%	9.0%	10.8%
	4 - AGREE	Count	28	38	47	56	169
		% within Class	28.9%	33.3%	38.2%	33.5%	33.7%
	5 - STRONGLY AGREE	Count	50	64	57	95	266
		% within Class	51.5%	56.1%	46.3%	56.9%	53.1%
Total		Count	97	114	123	167	501
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

I was exposed to new methods for interpersonal interaction.

Q13B * Class Crosstabulation

			Class				
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	Total
Q13B	1 - STRONGLY DISAGREE	Count	6	7	7	5	25
		% within Class	6.2%	6.2%	5.7%	3.0%	5.0%
	2 - DISAGREE	Count	13	22	15	14	64
		% within Class	13.4%	19.5%	12.3%	8.4%	12.9%
	3 - NEUTRAL	Count	27	23	39	55	144
		% within Class	27.8%	20.4%	32.0%	33.1%	28.9%
	4 - AGREE	Count	36	39	52	72	199
		% within Class	37.1%	34.5%	42.6%	43.4%	40.0%
	5 - STRONGLY AGREE	Count	15	22	9	20	66
		% within Class	15.5%	19.5%	7.4%	12.0%	13.3%
Total		Count	97	113	122	166	498
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

It will help me be a better citizen.

Q13C * Class Crosstabulation

			Class				
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	Total
Q13C	1 - STRONGLY DISAGREE	Count	5	10	6	8	29
		% within Class	5.2%	8.8%	5.0%	4.8%	5.8%
	2 - DISAGREE	Count	11	13	12	11	47
		% within Class	11.5%	11.5%	9.9%	6.6%	9.5%
	3 - NEUTRAL	Count	23	26	54	62	165
		% within Class	24.0%	23.0%	44.6%	37.1%	33.2%
	4 - AGREE	Count	36	41	36	62	175
		% within Class	37.5%	36.3%	29.8%	37.1%	35.2%
	5 - STRONGLY AGREE	Count	21	23	13	24	81
		% within Class	21.9%	20.4%	10.7%	14.4%	16.3%
Total		Count	96	113	121	167	497
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

I understand myself better by my interaction with other students.

Q13D * Class Crosstabulation

			Class				
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	Total
Q13D	1 - STRONGLY DISAGREE	Count	8	8	7	7	30
		% within Class	8.2%	7.1%	5.8%	4.2%	6.1%
	2 - DISAGREE	Count	14	22	7	18	61
		% within Class	14.4%	19.6%	5.8%	10.8%	12.3%
	3 - NEUTRAL	Count	28	21	53	38	140
		% within Class	28.9%	18.8%	44.2%	22.9%	28.3%
	4 - AGREE	Count	31	40	42	77	190
		% within Class	32.0%	35.7%	35.0%	46.4%	38.4%
	5 - STRONGLY AGREE	Count	16	21	11	26	74
		% within Class	16.5%	18.8%	9.2%	15.7%	14.9%
Total		Count	97	112	120	166	495
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

I recognize the positive outcomes of working cooperatively.

Q13E * Class Crosstabulation

			Class				Total
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	
Q13E	1 - STRONGLY DISAGREE	Count	3	1	3	1	8
		% within Class	3.1%	.9%	2.5%	.6%	1.6%
	2 - DISAGREE	Count	1	3	5	2	11
		% within Class	1.0%	2.7%	4.1%	1.2%	2.2%
	3 - NEUTRAL	Count	16	18	13	17	64
		% within Class	16.7%	16.1%	10.7%	10.2%	12.9%
	4 - AGREE	Count	44	53	65	95	257
		% within Class	45.8%	47.3%	53.7%	57.2%	51.9%
	5 - STRONGLY AGREE	Count	32	37	35	51	155
		% within Class	33.3%	33.0%	28.9%	30.7%	31.3%
Total		Count	96	112	121	166	495
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

I have forged close relationships with my team members.

Q13F * Class Crosstabulation

			Class				Total
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	
Q13F	1 - STRONGLY DISAGREE	Count	2	6	4	6	18
		% within Class	2.1%	5.3%	3.3%	3.6%	3.6%
	2 - DISAGREE	Count	18	12	15	19	64
		% within Class	18.6%	10.6%	12.3%	11.5%	12.9%
	3 - NEUTRAL	Count	29	40	47	61	177
		% within Class	29.9%	35.4%	38.5%	37.0%	35.6%
	4 - AGREE	Count	33	32	38	56	159
		% within Class	34.0%	28.3%	31.1%	33.9%	32.0%
	5 - STRONGLY AGREE	Count	15	23	18	23	79
		% within Class	15.5%	20.4%	14.8%	13.9%	15.9%
Total		Count	97	113	122	165	497
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

I feel safe and supported in a team environment.

Q13G * Class Crosstabulation

			Class				
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	Total
Q13G	1 - STRONGLY DISAGREE	Count	4	5	5	6	20
		% within Class	4.1%	4.4%	4.1%	3.6%	4.0%
	2 - DISAGREE	Count	9	14	16	11	50
		% within Class	9.3%	12.4%	13.2%	6.6%	10.0%
	3 - NEUTRAL	Count	35	36	46	72	189
		% within Class	36.1%	31.9%	38.0%	43.1%	38.0%
	4 - AGREE	Count	34	43	42	56	175
		% within Class	35.1%	38.1%	34.7%	33.5%	35.1%
	5 - STRONGLY AGREE	Count	15	15	12	22	64
		% within Class	15.5%	13.3%	9.9%	13.2%	12.9%
Total		Count	97	113	121	167	498
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

It is clear to me why working on teams is critical to my education.

Q13H * Class Crosstabulation

			Class				
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	Total
Q13H	1 - STRONGLY DISAGREE	Count	4	5	2	1	12
		% within Class	4.1%	4.4%	1.7%	.6%	2.4%
	2 - DISAGREE	Count	7	6	6	5	24
		% within Class	7.2%	5.3%	5.0%	3.0%	4.8%
	3 - NEUTRAL	Count	15	20	22	21	78
		% within Class	15.5%	17.7%	18.2%	12.7%	15.7%
	4 - AGREE	Count	45	41	56	80	222
		% within Class	46.4%	36.3%	46.3%	48.2%	44.7%
	5 - STRONGLY AGREE	Count	26	41	35	59	161
		% within Class	26.8%	36.3%	28.9%	35.5%	32.4%
Total		Count	97	113	121	166	497
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

Section 4 – Negative Teamwork Experiences

The negative aspects with teamwork at Lawrence Tech are: Competition within group for better grades.

Q14A * Class Crosstabulation

			Class				Total
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	
Q14A	1 - STRONGLY DISAGREE	Count	22	15	17	18	72
		% within Class	22.7%	13.0%	13.7%	10.7%	14.3%
	2 - DISAGREE	Count	32	43	43	63	181
		% within Class	33.0%	37.4%	34.7%	37.5%	35.9%
	3 - NEUTRAL	Count	22	36	45	51	154
		% within Class	22.7%	31.3%	36.3%	30.4%	30.6%
	4 - AGREE	Count	15	16	13	31	75
		% within Class	15.5%	13.9%	10.5%	18.5%	14.9%
	5 - STRONGLY AGREE	Count	6	5	6	5	22
		% within Class	6.2%	4.3%	4.8%	3.0%	4.4%
Total		Count	97	115	124	168	504
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

Personal ego of team members dominates over cooperation.

Q14B * Class Crosstabulation

			Class				Total
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	
Q14B	1 - STRONGLY DISAGREE	Count	12	9	4	6	31
		% within Class	12.4%	7.8%	3.2%	3.6%	6.2%
	2 - DISAGREE	Count	27	37	33	48	145
		% within Class	27.8%	32.2%	26.6%	28.6%	28.8%
	3 - NEUTRAL	Count	30	38	48	46	162
		% within Class	30.9%	33.0%	38.7%	27.4%	32.1%
	4 - AGREE	Count	21	19	31	54	125
		% within Class	21.6%	16.5%	25.0%	32.1%	24.8%
	5 - STRONGLY AGREE	Count	7	12	8	14	41
		% within Class	7.2%	10.4%	6.5%	8.3%	8.1%
Total		Count	97	115	124	168	504
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

Focus on the problem-solving outcome only and not the educational experience.

Q14C * Class Crosstabulation

			Class				
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	Total
Q14C	1 - STRONGLY DISAGREE	Count	6	6	2	4	18
		% within Class	6.2%	5.3%	1.6%	2.4%	3.6%
	2 - DISAGREE	Count	16	28	26	34	104
		% within Class	16.5%	24.6%	21.0%	20.4%	20.7%
	3 - NEUTRAL	Count	34	40	57	64	195
		% within Class	35.1%	35.1%	46.0%	38.3%	38.8%
	4 - AGREE	Count	31	29	30	53	143
		% within Class	32.0%	25.4%	24.2%	31.7%	28.5%
	5 - STRONGLY AGREE	Count	10	11	9	12	42
		% within Class	10.3%	9.6%	7.3%	7.2%	8.4%
Total		Count	97	114	124	167	502
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

Lack of bonding with team members.

Q14D * Class Crosstabulation

			Class				
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	Total
Q14D	1 - STRONGLY DISAGREE	Count	8	7	8	5	28
		% within Class	8.2%	6.1%	6.5%	3.0%	5.6%
	2 - DISAGREE	Count	29	35	41	47	152
		% within Class	29.9%	30.7%	33.3%	28.1%	30.3%
	3 - NEUTRAL	Count	33	39	44	67	183
		% within Class	34.0%	34.2%	35.8%	40.1%	36.5%
	4 - AGREE	Count	20	24	24	41	109
		% within Class	20.6%	21.1%	19.5%	24.6%	21.8%
	5 - STRONGLY AGREE	Count	7	9	6	7	29
		% within Class	7.2%	7.9%	4.9%	4.2%	5.8%
Total		Count	97	114	123	167	501
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

Inability to schedule meeting times.

Q14E * Class Crosstabulation

			Class				
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	Total
Q14E	1 - STRONGLY DISAGREE	Count	4	7	2	5	18
		% within Class	4.2%	6.2%	1.6%	3.0%	3.6%
	2 - DISAGREE	Count	17	20	27	31	95
		% within Class	17.7%	17.7%	21.8%	18.6%	19.0%
	3 - NEUTRAL	Count	27	30	32	40	129
		% within Class	28.1%	26.5%	25.8%	24.0%	25.8%
	4 - AGREE	Count	27	39	47	67	180
		% within Class	28.1%	34.5%	37.9%	40.1%	36.0%
	5 - STRONGLY AGREE	Count	21	17	16	24	78
		% within Class	21.9%	15.0%	12.9%	14.4%	15.6%
Total		Count	96	113	124	167	500
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

Teamwork requires too much effort and time and is not productive.

Q14F * Class Crosstabulation

			Class				
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	Total
Q14F	1 - STRONGLY DISAGREE	Count	14	13	9	21	57
		% within Class	14.4%	11.5%	7.3%	12.7%	11.4%
	2 - DISAGREE	Count	36	35	47	55	173
		% within Class	37.1%	31.0%	37.9%	33.1%	34.6%
	3 - NEUTRAL	Count	26	30	37	54	147
		% within Class	26.8%	26.5%	29.8%	32.5%	29.4%
	4 - AGREE	Count	15	22	20	24	81
		% within Class	15.5%	19.5%	16.1%	14.5%	16.2%
	5 - STRONGLY AGREE	Count	6	13	11	12	42
		% within Class	6.2%	11.5%	8.9%	7.2%	8.4%
Total		Count	97	113	124	166	500
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

Difficulty in determining individual or group roles and responsibilities.

Q14G * Class Crosstabulation

			Class				
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	Total
Q14G	1 - STRONGLY DISAGREE	Count	12	8	7	8	35
		% within Class	12.4%	7.0%	5.6%	4.8%	6.9%
	2 - DISAGREE	Count	32	32	41	54	159
		% within Class	33.0%	27.8%	33.1%	32.1%	31.5%
	3 - NEUTRAL	Count	37	42	49	57	185
		% within Class	38.1%	36.5%	39.5%	33.9%	36.7%
	4 - AGREE	Count	10	25	21	42	98
		% within Class	10.3%	21.7%	16.9%	25.0%	19.4%
	5 - STRONGLY AGREE	Count	6	8	6	7	27
		% within Class	6.2%	7.0%	4.8%	4.2%	5.4%
Total		Count	97	115	124	168	504
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

Section 5 – Background Teamwork Information

When considering my overall teamwork experiences in courses at Lawrence Tech, I consider my grades on assignments that require teamwork to be:

Q15 * Class Crosstabulation

			Class				Total
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	
Q15	1 - Mixed opinion	Count	5	3	2	4	14
		% within Class	5.2%	2.6%	1.6%	2.4%	2.8%
	2 - Lower than deserved	Count	14	21	19	24	78
		% within Class	14.4%	18.3%	15.3%	14.2%	15.4%
	3 - Fair	Count	74	86	95	135	390
		% within Class	76.3%	74.8%	76.6%	79.9%	77.2%
	4 - Higher than deserved	Count	4	5	8	6	23
		% within Class	4.1%	4.3%	6.5%	3.6%	4.6%
Total		Count	97	115	124	169	505
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

Overall, your teamwork experiences in courses at Lawrence Tech would best be described as:

Q16 * Class Crosstabulation

			Class				Total
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	
Q16	1 - Very detrimental	Count	2	3	4	3	12
		% within Class	2.1%	2.6%	3.3%	1.8%	2.4%
	2 - Detrimental	Count	8	8	11	11	38
		% within Class	8.2%	7.0%	9.0%	6.5%	7.5%
	3 - Neutral	Count	22	26	25	31	104
		% within Class	22.7%	22.6%	20.5%	18.2%	20.6%
	4 - Beneficial but not necessary	Count	46	56	61	88	251
		% within Class	47.4%	48.7%	50.0%	51.8%	49.8%
	5 - Necessary	Count	19	22	21	37	99
		% within Class	19.6%	19.1%	17.2%	21.8%	19.6%
Total		Count	97	115	122	170	504
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

Your teamwork experiences at Lawrence Tech, with respect to your education, would best be described as:

Q17 * Class Crosstabulation

			Class				
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	Total
Q17	1 - Very negative	Count	2	3	4	3	12
		% within Class	2.1%	2.6%	3.3%	1.8%	2.4%
	2 - Somewhat negative	Count	8	8	11	11	38
		% within Class	8.2%	7.0%	9.0%	6.5%	7.5%
	3 - Neutral	Count	22	26	25	31	104
		% within Class	22.7%	22.6%	20.5%	18.2%	20.6%
	4 - Somewhat positive	Count	46	56	61	88	251
		% within Class	47.4%	48.7%	50.0%	51.8%	49.8%
	5 - Very positive	Count	19	22	21	37	99
		% within Class	19.6%	19.1%	17.2%	21.8%	19.6%
Total		Count	97	115	122	170	504
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

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

Q18 * Class Crosstabulation

			Class				
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	Total
Q18	1 - No	Count	47	53	62	62	224
		% within Class	48.5%	47.7%	50.4%	36.5%	44.7%
	2 - Yes	Count	50	58	61	108	277
		% within Class	51.5%	52.3%	49.6%	63.5%	55.3%
Total		Count	97	111	123	170	501
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

If you answered yes, how often would you describe the teamwork experience as positive?

Q19 * Class Crosstabulation

			Class				
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	Total
Q19	1 - Never	Count	1	0	0	2	3
		% within Class	1.9%	.0%	.0%	1.7%	1.0%
	2 - Almost never	Count	0	1	3	2	6
		% within Class	.0%	1.6%	4.6%	1.7%	2.0%
	3 - Half of the time	Count	11	15	10	18	54
		% within Class	20.8%	23.4%	15.4%	15.7%	18.2%
	4 - Most of the time	Count	27	32	44	71	174
		% within Class	50.9%	50.0%	67.7%	61.7%	58.6%
	5 - Always	Count	14	16	8	22	60
		% within Class	26.4%	25.0%	12.3%	19.1%	20.2%
Total		Count	53	64	65	115	297
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

If you answered yes, your teamwork experiences outside of class at Lawrence Tech, with respect to your education, would best be described as:

Q20 * Class Crosstabulation

			Class				
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	Total
Q20	2 - Detrimental	Count	0	1	1	5	7
		% within Class	.0%	1.6%	1.6%	4.4%	2.4%
	3 - Neutral	Count	15	10	13	16	54
		% within Class	28.8%	16.1%	20.6%	14.2%	18.6%
	4 - Beneficial but not necessary	Count	26	30	27	48	131
		% within Class	50.0%	48.4%	42.9%	42.5%	45.2%
	5 - Necessary	Count	11	21	22	44	98
		% within Class	21.2%	33.9%	34.9%	38.9%	33.8%
Total		Count	52	62	63	113	290
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

Section 6 – Demographics

Age * Class Crosstabulation

			Class				
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	Total
Age	8	Count	0	1	0	0	1
		% within Class	.0%	.8%	.0%	.0%	.2%
	15	Count	0	0	1	0	1
		% within Class	.0%	.0%	.8%	.0%	.2%
	16	Count	2	1	0	0	3
		% within Class	2.0%	.8%	.0%	.0%	.6%
	17	Count	0	0	0	1	1
		% within Class	.0%	.0%	.0%	.6%	.2%
	18	Count	36	0	0	0	36
		% within Class	36.4%	.0%	.0%	.0%	7.1%
	19	Count	40	21	2	0	63
		% within Class	40.4%	17.8%	1.6%	.0%	12.5%
	20	Count	3	29	24	1	57
		% within Class	3.0%	24.6%	19.5%	.6%	11.3%
	21	Count	3	18	26	29	76
		% within Class	3.0%	15.3%	21.1%	17.6%	15.0%
	22	Count	3	11	17	41	72
		% within Class	3.0%	9.3%	13.8%	24.8%	14.3%
	23	Count	2	8	18	26	54
		% within Class	2.0%	6.8%	14.6%	15.8%	10.7%
	24	Count	1	2	7	14	24
		% within Class	1.0%	1.7%	5.7%	8.5%	4.8%
	25	Count	0	7	7	8	22
		% within Class	.0%	5.9%	5.7%	4.8%	4.4%
	26	Count	0	3	1	6	10
		% within Class	.0%	2.5%	.8%	3.6%	2.0%
	27	Count	2	3	4	5	14
		% within Class	2.0%	2.5%	3.3%	3.0%	2.8%
	28	Count	0	2	5	2	9
		% within Class	.0%	1.7%	4.1%	1.2%	1.8%
	29	Count	1	1	0	3	5
		% within Class	1.0%	.8%	.0%	1.8%	1.0%
	30	Count	0	2	1	4	7
		% within Class	.0%	1.7%	.8%	2.4%	1.4%
	31	Count	1	2	4	4	11
		% within Class	1.0%	1.7%	3.3%	2.4%	2.2%
	32	Count	1	1	0	2	4
		% within Class	1.0%	.8%	.0%	1.2%	.8%
	33	Count	0	2	2	1	5

		% within Class	.0%	1.7%	1.6%	.6%	1.0%
	34	Count	0	0	0	3	3
		% within Class	.0%	.0%	.0%	1.8%	.6%
	35	Count	0	0	0	2	2
		% within Class	.0%	.0%	.0%	1.2%	.4%
	36	Count	1	0	1	0	2
		% within Class	1.0%	.0%	.8%	.0%	.4%
	37	Count	0	0	0	1	1
		% within Class	.0%	.0%	.0%	.6%	.2%
	38	Count	0	0	0	3	3
		% within Class	.0%	.0%	.0%	1.8%	.6%
	39	Count	1	0	0	0	1
		% within Class	1.0%	.0%	.0%	.0%	.2%
	41	Count	0	0	0	2	2
		% within Class	.0%	.0%	.0%	1.2%	.4%
	42	Count	0	0	1	0	1
		% within Class	.0%	.0%	.8%	.0%	.2%
	43	Count	0	0	0	1	1
		% within Class	.0%	.0%	.0%	.6%	.2%
	44	Count	0	1	0	0	1
		% within Class	.0%	.8%	.0%	.0%	.2%
	45	Count	1	0	0	2	3
		% within Class	1.0%	.0%	.0%	1.2%	.6%
	46	Count	0	1	0	0	1
		% within Class	.0%	.8%	.0%	.0%	.2%
	49	Count	0	0	0	2	2
		% within Class	.0%	.0%	.0%	1.2%	.4%
	50	Count	1	0	0	0	1
		% within Class	1.0%	.0%	.0%	.0%	.2%
	51	Count	0	0	0	1	1
		% within Class	.0%	.0%	.0%	.6%	.2%
	53	Count	0	0	0	1	1
		% within Class	.0%	.0%	.0%	.6%	.2%
	55	Count	0	0	2	0	2
		% within Class	.0%	.0%	1.6%	.0%	.4%
	56	Count	0	1	0	0	1
		% within Class	.0%	.8%	.0%	.0%	.2%
	59	Count	0	1	0	0	1
		% within Class	.0%	.8%	.0%	.0%	.2%
Total		Count	99	118	123	165	505
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

Gender * Class Crosstabulation

			Class				
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	Total
Gender	1 - FEMALE	Count	26	28	23	41	118
		% within Class	25.5%	22.8%	18.4%	24.3%	22.7%
	2 - MALE	Count	76	95	102	128	401
		% within Class	74.5%	77.2%	81.6%	75.7%	77.3%
Total		Count	102	123	125	169	519
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

Major * Class Crosstabulation

			Class				
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	Total
Major	ARCHITECTURE & DESIGN	Count	19	48	32	46	145
		% within Class	20.0%	43.2%	27.4%	29.7%	30.3%
	ARTS & SCIENCES	Count	19	16	24	22	81
		% within Class	20.0%	14.4%	20.5%	14.2%	16.9%
	ENGINEERING	Count	56	46	52	73	227
		% within Class	58.9%	41.4%	44.4%	47.1%	47.5%
	MANAGEMENT	Count	1	1	9	14	25
		% within Class	1.1%	.9%	7.7%	9.0%	5.2%
Total		Count	95	111	117	155	478
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

GPA * Class Crosstabulation

			Class				
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	Total
GPA	.0	Count	1	0	0	0	1
		% within Class	1.1%	.0%	.0%	.0%	.2%
	.2	Count	0	1	0	0	1
		% within Class	.0%	.9%	.0%	.0%	.2%
	.4	Count	3	2	0	0	5
		% within Class	3.2%	1.8%	.0%	.0%	1.0%
	.5	Count	0	1	0	0	1
		% within Class	.0%	.9%	.0%	.0%	.2%
	.8	Count	0	1	0	0	1
		% within Class	.0%	.9%	.0%	.0%	.2%
	.9	Count	1	0	0	0	1
		% within Class	1.1%	.0%	.0%	.0%	.2%
	1.4	Count	0	0	0	1	1
		% within Class	.0%	.0%	.0%	.6%	.2%
	1.9	Count	2	4	0	0	6
		% within Class	2.1%	3.5%	.0%	.0%	1.2%
	2.0	Count	0	4	2	3	9
		% within Class	.0%	3.5%	1.7%	1.9%	1.8%
	2.1	Count	0	1	2	0	3
		% within Class	.0%	.9%	1.7%	.0%	.6%
	2.2	Count	2	0	6	1	9
		% within Class	2.1%	.0%	5.1%	.6%	1.8%
	2.3	Count	2	1	1	0	4
		% within Class	2.1%	.9%	.8%	.0%	.8%
	2.4	Count	0	1	2	1	4
		% within Class	.0%	.9%	1.7%	.6%	.8%
	2.5	Count	4	1	3	12	20
		% within Class	4.2%	.9%	2.5%	7.5%	4.1%
	2.6	Count	0	2	3	5	10
		% within Class	.0%	1.8%	2.5%	3.1%	2.1%
	2.7	Count	2	3	3	6	14
		% within Class	2.1%	2.7%	2.5%	3.7%	2.9%
	2.8	Count	2	3	2	7	14
		% within Class	2.1%	2.7%	1.7%	4.3%	2.9%
	2.9	Count	5	5	6	11	27
		% within Class	5.3%	4.4%	5.1%	6.8%	5.5%
	3.0	Count	7	17	14	18	56
		% within Class	7.4%	15.0%	11.9%	11.2%	11.5%
	3.1	Count	6	5	5	8	24
		% within Class	6.3%	4.4%	4.2%	5.0%	4.9%
	3.2	Count	5	6	9	12	32

		% within Class	5.3%	5.3%	7.6%	7.5%	6.6%
	3.3	Count	6	10	9	10	35
		% within Class	6.3%	8.8%	7.6%	6.2%	7.2%
	3.4	Count	8	3	9	15	35
		% within Class	8.4%	2.7%	7.6%	9.3%	7.2%
	3.5	Count	6	15	7	14	42
		% within Class	6.3%	13.3%	5.9%	8.7%	8.6%
	3.6	Count	5	6	6	8	25
		% within Class	5.3%	5.3%	5.1%	5.0%	5.1%
	3.7	Count	8	5	9	10	32
		% within Class	8.4%	4.4%	7.6%	6.2%	6.6%
	3.8	Count	10	8	8	15	41
		% within Class	10.5%	7.1%	6.8%	9.3%	8.4%
	3.9	Count	6	2	10	4	22
		% within Class	6.3%	1.8%	8.5%	2.5%	4.5%
	4.0	Count	4	4	2	0	10
		% within Class	4.2%	3.5%	1.7%	.0%	2.1%
	4.2	Count	0	1	0	0	1
		% within Class	.0%	.9%	.0%	.0%	.2%
	4.4	Count	0	1	0	0	1
		% within Class	.0%	.9%	.0%	.0%	.2%
Total		Count	95	113	118	161	487
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

Black * Class Crosstabulation

			Class				
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	Total
Black	1 - NO	Count	100	116	120	166	502
		% within Class	97.1%	94.3%	95.2%	97.1%	96.0%
	2 - YES	Count	3	7	6	5	21
		% within Class	2.9%	5.7%	4.8%	2.9%	4.0%
Total		Count	103	123	126	171	523
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

Asian * Class Crosstabulation

			Class				
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	Total
Asian	1 - NO	Count	98	112	111	154	475
		% within Class	95.1%	91.1%	88.1%	90.1%	90.8%
	2 - YES	Count	5	11	15	17	48
		% within Class	4.9%	8.9%	11.9%	9.9%	9.2%
Total		Count	103	123	126	171	523
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

Hispanic * Class Crosstabulation

			Class				
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	Total
Hispanic	1 - NO	Count	90	110	113	155	468
		% within Class	87.4%	89.4%	89.7%	90.6%	89.5%
	2 - YES	Count	13	13	13	16	55
		% within Class	12.6%	10.6%	10.3%	9.4%	10.5%
Total		Count	103	123	126	171	523
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

Native * Class Crosstabulation

			Class				
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	Total
Native	1 - NO	Count	102	120	122	166	510
		% within Class	99.0%	97.6%	96.8%	97.1%	97.5%
	2 - YES	Count	1	3	4	5	13
		% within Class	1.0%	2.4%	3.2%	2.9%	2.5%
Total		Count	103	123	126	171	523
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

White * Class Crosstabulation

			Class				
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	Total
White	1 - NO	Count	22	21	31	32	106
		% within Class	21.4%	17.1%	24.6%	18.7%	20.3%
	2 - YES	Count	81	102	95	139	417
		% within Class	78.6%	82.9%	75.4%	81.3%	79.7%
Total		Count	103	123	126	171	523
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

How would you categorize the time of your course selection?

Q21G * Class Crosstabulation

			Class				Total
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	
Q21G	1 - MAJORITY BEFORE 5 PM	Count	50	50	45	34	179
		% within Class	48.5%	41.0%	36.0%	20.0%	34.4%
	2 - MAJORITY AFTER 5 PM	Count	17	31	41	67	156
		% within Class	16.5%	25.4%	32.8%	39.4%	30.0%
	3 - EVEN DISTRIBUTION	Count	36	41	39	69	185
		% within Class	35.0%	33.6%	31.2%	40.6%	35.6%
Total		Count	103	122	125	170	520
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

Did you transfer into Lawrence Tech from another school?

Q21H * Class Crosstabulation

			Class				Total
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	
Q21H	1 - NO	Count	86	63	56	93	298
		% within Class	83.5%	52.1%	44.4%	55.7%	57.6%
	2 - TRANSFERED FROM 2-YEAR COLLEGE	Count	12	40	52	55	159
		% within Class	11.7%	33.1%	41.3%	32.9%	30.8%
	3 - TRANSFERRED FROM 4-YEAR COLLEGE	Count	5	18	18	19	60
		% within Class	4.9%	14.9%	14.3%	11.4%	11.6%
Total		Count	103	121	126	167	517
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

If you transferred into Lawrence Tech from another school, approximately how many hours did you transfer?

Q21I * Class Crosstabulation

			Class				Total
			FRESHMAN	SOPHOMORE	JUNIOR	SENIOR	
Q21I	1 - 1 TO 14 HOURS	Count	10	11	13	17	51
		% within Class	58.8%	18.6%	18.3%	21.5%	22.6%
	2 - 15 TO 29 HOURS	Count	4	25	20	20	69
		% within Class	23.5%	42.4%	28.2%	25.3%	30.5%
	3 - 30 TO 59 HOURS	Count	2	19	34	27	82
		% within Class	11.8%	32.2%	47.9%	34.2%	36.3%
	4 - MORE THAN 60 HOURS	Count	1	4	4	15	24
		% within Class	5.9%	6.8%	5.6%	19.0%	10.6%
Total		Count	17	59	71	79	226
		% within Class	100.0%	100.0%	100.0%	100.0%	100.0%

Assessment of Teamwork over Time: Full Sample, 2006 vs. 2010

Report Summary:

This report contains descriptive crosstabulations of responses to teamwork survey questions by year of survey administration (2006 and 2010). For questions with quasi-continuous (Likert-like scales) response categories, an independent samples t-test was performed to compare mean responses in 2006 against those collected in 2010. For questions with categorical response categories, a Mann-Whitney test was performed to determine whether the distribution of responses to a question in 2006 were different from the distribution of responses to the same question in 2010. A summary of those statistical tests follows.

With regard to positive outcomes, the full sample of students reported that they took more courses with a teamwork component, that students evaluated team members one another more often, that students resolved conflict more respectfully, that egos dominate less in 2010 compared to 2006.

With regard to negative outcomes, the full sample of students reported that teams focused less on common goals and that teamwork assignments were less necessary in 2010 compared to 2006.

Summary of statistical tests:

Question	Significant?	Statistical Test
Q1. During your time at Lawrence Tech, in how many courses have you worked on a team?	$p < .001$	Independent samples t- test
Q2. What is the AVERAGE length of these team assignments?	Not	Independent samples t-test
Q3. What was the PRIMARY way that teams were assigned in the classes?	Not	Mann-Whitney
Q4. How often did the instructor monitor the teamwork process and team progress?	Not	Independent samples t- test
Q5. How often did instructor provide guidance or instructions on how team members should work together before starting the assignment/project?	Not	Independent samples t- test
Q6. If team roles were assigned, how often were responsibilities associated with those roles communicated?	Not	Independent samples t- test
Q7. How often did your team focus on a common goal or a single project?	$p < .001$	Independent samples t- test
Q8. How often did your team focus on a common goal or a single project?	Not	Independent samples t- test
Q9. How often were you required to evaluate your team members as a component of the team process?	$p < .001$	Independent samples t- test

Q10. How often did team members take responsibility for their work and contributions to the team?	Not	Independent samples t- test
Q11. How often did members of the team communicate and resolve conflict in a respectful manner?	$p < .01$	Independent samples t- test
Q12. How often did all team members of the team participate in decision making with no single team member dominating?	Not	Independent samples t- test
I enjoy working on team assignments in my courses at Lawrence Tech because,	Not	
Q13A. Teamwork skills are crucial in my field.	Not	Independent samples t-test
Q13B. I was exposed to new methods for interpersonal interaction.	Not	Independent samples t-test
Q13C. It will help me be a better citizen.	Not	Independent samples t-test
Q13D. I understand myself better by my interaction with other students.	Not	Independent samples t- test
Q13E. I recognize the positive outcomes of working cooperatively.	Not	Independent samples t-test
Q13F. I have forged close relationships with my team members.	Not	Independent samples t-test
Q13G. I feel safe and supported in a team environment.	Not	Independent samples t-test
Q13H. It is clear to me why working on teams is critical to my education.	Not	Independent samples t- test
The negative aspects with teamwork at Lawrence Tech are…	Not	
Q14A. Competition within group for better grades.	Not	Independent samples t-test
Q14B. Personal ego of team members dominates over cooperation.	$p < .01$	Independent samples t-test
Q14C. Focus on the problem solving outcome only and not the educational experience.	Not	Independent samples t- test
Q14D. Lack of bonding with team members.	Not	Independent samples t-test
Q14E. Inability to schedule meeting times.	Not	Independent samples t-test
Q14F. Teamwork requires too much effort and time and is not productive.	Not	Independent samples t- test
Q14G. Difficulty in determining individual or group roles and responsibilities.	Not	Independent samples t- test
Q15. When considering my overall teamwork experiences at Lawrence Tech, I consider my grades for teamwork to be…	Not	Mann-Whitney

Q16. Your experience in teamwork assignments in courses at Lawrence Tech, with respect to your education would be described as…	Not	Mann-Whitney
Q17. Overall, your team experiences in courses at Lawrence Tech would be described as…	Not	Independent samples t- test
Q18. Have you engaged in teamwork as part of a student organization, student group, or an enrichment opportunity outside of class?	Not	Mann-Whitney
Q19. If you answered yes to question #18, how often would you describe the teamwork experience as positive?	Not	Independent samples t- test
Q20. If you answered yes to question #18, your teamwork experiences outside of class at Lawrence Tech, with respect to your education would be described as…	Not	Mann-Whitney

Q1. During your time at Lawrence Tech, in how many courses have you worked on a team?

Q01 * Year Crosstabulation

			Year		
			2006	2010	Total
Q01	0	Count	34	19	53
		% within Year	5.2%	3.6%	4.5%
	1 to 2	Count	132	86	218
		% within Year	20.1%	16.5%	18.5%
	3 to 5	Count	277	198	475
		% within Year	42.2%	37.9%	40.3%
	6 to 10	Count	149	145	294
		% within Year	22.7%	27.8%	24.9%
	11 or more	Count	65	74	139
		% within Year	9.9%	14.2%	11.8%
Total		Count	657	522	1179
		% within Year	100.0%	100.0%	100.0%

Group Statistics

Year		N	Mean	Std. Deviation	Std. Error Mean
Q01	2006	657	3.12	1.009	.039
	2010	522	3.32	1.026	.045

p-value: .001

Q2. What is the AVERAGE length of these team assignments?

Q02 * Year Crosstabulation

			Year		
			2006	2010	Total
Q02	< 1 week	Count	66	58	124
		% within Year	10.6%	11.5%	11.0%
	1 to 3 weeks	Count	343	301	644
		% within Year	55.0%	59.5%	57.0%
	4 to 6 weeks	Count	133	75	208
		% within Year	21.3%	14.8%	18.4%
	7 to 9 weeks	Count	35	39	74
		% within Year	5.6%	7.7%	6.5%
	10 to 12 weeks	Count	19	17	36
		% within Year	3.0%	3.4%	3.2%
	13 to 15 weeks	Count	28	16	44
		% within Year	4.5%	3.2%	3.9%
Total		Count	624	506	1130
		% within Year	100.0%	100.0%	100.0%

Group Statistics

Year		N	Mean	Std. Deviation	Std. Error Mean
Q02	2006	624	2.49	1.139	.046
	2010	506	2.42	1.100	.049

t-test p-value : .262

Q3. What was the PRIMARY way that teams were assigned in the classes?

Q03 * Year Crosstabulation

			Year		
			2006	2010	Total
Q03	By students or self selected	Count	391	292	683
		% within Year	63.4%	58.9%	61.4%
	By instructor without explanation	Count	149	121	270
		% within Year	24.1%	24.4%	24.3%
	By instructor based on personality or skills	Count	26	33	59
		% within Year	4.2%	6.7%	5.3%
	By instructor based on schedules	Count	7	12	19
		% within Year	1.1%	2.4%	1.7%
	By instructor based on both	Count	17	17	34
		% within Year	2.8%	3.4%	3.1%
	Other	Count	27	21	48
		% within Year	4.4%	4.2%	4.3%
Total		Count	617	496	1113
		% within Year	100.0%	100.0%	100.0%

Mann-Whitney Ranks

Year		N	Mean Rank	Sum of Ranks
Q03	2006	617	543.97	335631.50
	2010	496	573.20	284309.50
	Total	1113		

p-value: .083

Section 2:
Q4. How often did the instructor monitor the teamwork process and team progress?

Q04 * Year Crosstabulation

			Year		
			2006	2010	Total
Q04	1 - Never	Count	23	20	43
		% within Year	3.7%	4.0%	3.8%
	2 - Almost never	Count	123	118	241
		% within Year	19.7%	23.7%	21.5%
	3 - Half of the time	Count	233	184	417
		% within Year	37.3%	36.9%	37.1%
	4 - Most of the time	Count	210	147	357
		% within Year	33.6%	29.5%	31.8%
	5 - Always	Count	36	29	65
		% within Year	5.8%	5.8%	5.8%
Total		Count	625	498	1123
		% within Year	100.0%	100.0%	100.0%

Group Statistics

Year		N	Mean	Std. Deviation	Std. Error Mean
Q04	2006	625	3.18	.938	.038
	2010	498	3.09	.958	.043

p-value: .129

Q5. How often did instructor provide guidance or instructions on how team members should work together before starting the assignment/project?

Q05 * Year Crosstabulation

			Year		
			2006	2010	Total
Q05	1 - Never	Count	34	25	59
		% within Year	5.4%	5.0%	5.3%
	2 - Almost never	Count	109	97	206
		% within Year	17.5%	19.5%	18.4%
	3 - Half of the time	Count	204	160	364
		% within Year	32.7%	32.2%	32.5%
	4 - Most of the time	Count	223	175	398
		% within Year	35.7%	35.2%	35.5%
	5 - Always	Count	54	40	94
		% within Year	8.7%	8.0%	8.4%
Total		Count	624	497	1121
		% within Year	100.0%	100.0%	100.0%

Group Statistics

Year		N	Mean	Std. Deviation	Std. Error Mean
Q05	2006	624	3.25	1.018	.041
	2010	497	3.22	1.013	.045

p-value: .629

Q6. If team roles were assigned, how often were responsibilities associated with those roles communicated?

Q06 * Year Crosstabulation

			Year		
			2006	2010	Total
Q06	1 - Never	Count	60	41	101
		% within Year	9.7%	8.3%	9.1%
	2 - Almost never	Count	149	108	257
		% within Year	24.1%	21.8%	23.1%
	3 - Half of the time	Count	157	159	316
		% within Year	25.4%	32.1%	28.4%
	4 - Most of the time	Count	197	131	328
		% within Year	31.9%	26.5%	29.5%
	5 - Always	Count	55	56	111
		% within Year	8.9%	11.3%	10.0%
Total		Count	618	495	1113
		% within Year	100.0%	100.0%	100.0%

Group Statistics

Year		N	Mean	Std. Deviation	Std. Error Mean
Q06	2006	618	3.06	1.141	.046
	2010	495	3.11	1.121	.050

p-value: .505

Q7. How often did your team focus on a common goal or a single project?

Q07 * Year Crosstabulation

			Year		
			2006	2010	Total
Q07	1 - Never	Count	39	51	90
		% within Year	6.5%	10.7%	8.4%
	2 - Almost never	Count	67	118	185
		% within Year	11.2%	24.7%	17.2%
	3 - Half of the time	Count	191	128	319
		% within Year	31.9%	26.8%	29.6%
	4 - Most of the time	Count	250	130	380
		% within Year	41.7%	27.2%	35.3%
	5 - Always	Count	52	51	103
		% within Year	8.7%	10.7%	9.6%
Total		Count	599	478	1077
		% within Year	100.0%	100.0%	100.0%

Group Statistics

Year		N	Mean	Std. Deviation	Std. Error Mean
Q07	2006	599	3.35	1.008	.041
	2010	478	3.03	1.172	.054

p-value: < .001

Q8. How often did your team focus on a common goal or a single project?

Q08 * Year Crosstabulation

			Year		
			2006	2010	Total
Q08	1 - Never	Count	6	7	13
		% within Year	1.0%	1.4%	1.2%
	2 - Almost never	Count	15	7	22
		% within Year	2.4%	1.4%	2.0%
	3 - Half of the time	Count	114	95	209
		% within Year	18.4%	19.4%	18.8%
	4 - Most of the time	Count	312	238	550
		% within Year	50.3%	48.6%	49.5%
	5 - Always	Count	173	143	316
		% within Year	27.9%	29.2%	28.5%
Total		Count	620	490	1110
		% within Year	100.0%	100.0%	100.0%

Group Statistics

Year		N	Mean	Std. Deviation	Std. Error Mean
Q08	2006	620	4.02	.805	.032
	2010	490	4.03	.820	.037

p-value: .858

Q9. How often were you required to evaluate your team members as a component of the team process?

Q09 * Year Crosstabulation

			Year		
			2006	2010	Total
Q09	1 - Never	Count	83	43	126
		% within Year	13.4%	8.6%	11.3%
	2 - Almost never	Count	191	103	294
		% within Year	30.8%	20.7%	26.3%
	3 - Half of the time	Count	170	151	321
		% within Year	27.4%	30.3%	28.7%
	4 - Most of the time	Count	131	123	254
		% within Year	21.1%	24.7%	22.7%
	5 - Always	Count	45	78	123
		% within Year	7.3%	15.7%	11.0%
Total		Count	620	498	1118
		% within Year	100.0%	100.0%	100.0%

Group Statistics

Year		N	Mean	Std. Deviation	Std. Error Mean
Q09	2006	620	2.78	1.140	.046
	2010	498	3.18	1.181	.053

p-value: < .001

Q10. How often did team members take responsibility for their work and contributions to the team?

Q10 * Year Crosstabulation

			Year		
			2006	2010	Total
Q10	1 - Never	Count	8	10	18
		% within Year	1.3%	2.0%	1.6%
	2 - Almost never	Count	51	39	90
		% within Year	8.2%	7.8%	8.0%
	3 - Half of the time	Count	207	131	338
		% within Year	33.1%	26.4%	30.1%
	4 - Most of the time	Count	296	251	547
		% within Year	47.4%	50.5%	48.8%
	5 - Always	Count	63	66	129
		% within Year	10.1%	13.3%	11.5%
Total		Count	625	497	1122
		% within Year	100.0%	100.0%	100.0%

Group Statistics

Year		N	Mean	Std. Deviation	Std. Error Mean
Q10	2006	625	3.57	.830	.033
	2010	497	3.65	.878	.039

p-value: .101

Q11. How often did members of the team communicate and resolve conflict in a respectful manner?

Q11 * Year Crosstabulation

			Year		
			2006	2010	Total
Q11	1 - Never	Count	13	7	20
		% within Year	2.1%	1.4%	1.8%
	2 - Almost never	Count	41	26	67
		% within Year	6.6%	5.2%	6.0%
	3 - Half of the time	Count	130	89	219
		% within Year	20.9%	17.9%	19.6%
	4 - Most of the time	Count	324	249	573
		% within Year	52.1%	50.0%	51.2%
	5 - Always	Count	114	127	241
		% within Year	18.3%	25.5%	21.5%
Total		Count	622	498	1120
		% within Year	100.0%	100.0%	100.0%

Group Statistics

Year		N	Mean	Std. Deviation	Std. Error Mean
Q11	2006	622	3.78	.893	.036
	2010	498	3.93	.875	.039

p-value: .005

Q12. How often did all team members of the team participate in decision making with no single team member dominating?

Q12 * Year Crosstabulation

			Year		
			2006	2010	Total
Q12	1 - Never	Count	24	16	40
		% within Year	3.9%	3.2%	3.6%
	2 - Almost never	Count	79	64	143
		% within Year	12.8%	12.9%	12.8%
	3 - Half of the time	Count	206	164	370
		% within Year	33.3%	33.0%	33.2%
	4 - Most of the time	Count	261	192	453
		% within Year	42.2%	38.6%	40.6%
	5 - Always	Count	48	61	109
		% within Year	7.8%	12.3%	9.8%
Total		Count	618	497	1115
		% within Year	100.0%	100.0%	100.0%

Group Statistics

Year		N	Mean	Std. Deviation	Std. Error Mean
Q12	2006	618	3.37	.938	.038
	2010	497	3.44	.972	.044

p-value: .247

Section 3:
I enjoy working on team assignments in my courses at Lawrence Tech because,
Q13A. Teamwork skills are crucial in my field.

Q13A * Year Crosstabulation

			Year		
			2006	2010	Total
Q13A	1 - STRONGLY DISAGREE	Count	4	5	9
		% within Year	.6%	1.0%	.8%
	2 - DISAGREE	Count	6	7	13
		% within Year	1.0%	1.4%	1.2%
	3 - NEUTRAL	Count	59	54	113
		% within Year	9.5%	10.8%	10.0%
	4 - AGREE	Count	254	169	423
		% within Year	40.7%	33.7%	37.6%
	5 - STRONGLY AGREE	Count	301	266	567
		% within Year	48.2%	53.1%	50.4%
Total		Count	624	501	1125
		% within Year	100.0%	100.0%	100.0%

Group Statistics

Year		N	Mean	Std. Deviation	Std. Error Mean
Q13A	2006	624	4.35	.743	.030
	2010	501	4.37	.808	.036

p-value: .731

Q13B. I was exposed to new methods for interpersonal interaction.

Q13B * Year Crosstabulation

			Year		
			2006	2010	Total
Q13B	1 - STRONGLY DISAGREE	Count	24	25	49
		% within Year	3.9%	5.0%	4.4%
	2 - DISAGREE	Count	70	64	134
		% within Year	11.3%	12.9%	12.0%
	3 - NEUTRAL	Count	217	144	361
		% within Year	34.9%	28.9%	32.2%
	4 - AGREE	Count	246	199	445
		% within Year	39.5%	40.0%	39.7%
	5 - STRONGLY AGREE	Count	65	66	131
		% within Year	10.5%	13.3%	11.7%
Total		Count	622	498	1120
		% within Year	100.0%	100.0%	100.0%

Group Statistics

Year		N	Mean	Std. Deviation	Std. Error Mean
Q13B	2006	622	3.41	.954	.038
	2010	498	3.44	1.035	.046

p-value: .728

Q13C. It will help me be a better citizen.

Q13C * Year Crosstabulation

			Year		
			2006	2010	Total
Q13C	1 - STRONGLY DISAGREE	Count	31	29	60
		% within Year	5.0%	5.8%	5.4%
	2 - DISAGREE	Count	64	47	111
		% within Year	10.3%	9.5%	9.9%
	3 - NEUTRAL	Count	235	165	400
		% within Year	37.8%	33.2%	35.7%
	4 - AGREE	Count	220	175	395
		% within Year	35.4%	35.2%	35.3%
	5 - STRONGLY AGREE	Count	72	81	153
		% within Year	11.6%	16.3%	13.7%
Total		Count	622	497	1119
		% within Year	100.0%	100.0%	100.0%

Group Statistics

Year		N	Mean	Std. Deviation	Std. Error Mean
Q13C	2006	622	3.38	.987	.040
	2010	497	3.47	1.057	.047

p-value: .170

Q13D. I understand myself better by my interaction with other students.

Q13D * Year Crosstabulation

			Year		
			2006	2010	Total
Q13D	1 - STRONGLY DISAGREE	Count	25	30	55
		% within Year	4.0%	6.1%	4.9%
	2 - DISAGREE	Count	72	61	133
		% within Year	11.6%	12.3%	11.9%
	3 - NEUTRAL	Count	218	140	358
		% within Year	35.0%	28.3%	32.1%
	4 - AGREE	Count	232	190	422
		% within Year	37.3%	38.4%	37.8%
	5 - STRONGLY AGREE	Count	75	74	149
		% within Year	12.1%	14.9%	13.3%
Total		Count	622	495	1117
		% within Year	100.0%	100.0%	100.0%

Group Statistics

Year		N	Mean	Std. Deviation	Std. Error Mean
Q13D	2006	622	3.42	.979	.039
	2010	495	3.44	1.076	.048

p-value: .744

Q13E. I recognize the positive outcomes of working cooperatively.

Q13E * Year Crosstabulation

			Year		
			2006	2010	Total
Q13E	1 - STRONGLY DISAGREE	Count	5	8	13
		% within Year	.8%	1.6%	1.2%
	2 - DISAGREE	Count	14	11	25
		% within Year	2.2%	2.2%	2.2%
	3 - NEUTRAL	Count	88	64	152
		% within Year	14.1%	12.9%	13.6%
	4 - AGREE	Count	359	257	616
		% within Year	57.6%	51.9%	55.1%
	5 - STRONGLY AGREE	Count	157	155	312
		% within Year	25.2%	31.3%	27.9%
Total		Count	623	495	1118
		% within Year	100.0%	100.0%	100.0%

Group Statistics

Year		N	Mean	Std. Deviation	Std. Error Mean
Q13E	2006	623	4.04	.745	.030
	2010	495	4.09	.818	.037

p-value: .299

Q13F. I have forged close relationships with my team members.

Q13F * Year Crosstabulation

			Year		
			2006	2010	Total
Q13F	1 - STRONGLY DISAGREE	Count	22	18	40
		% within Year	3.5%	3.6%	3.6%
	2 - DISAGREE	Count	70	64	134
		% within Year	11.2%	12.9%	12.0%
	3 - NEUTRAL	Count	256	177	433
		% within Year	41.0%	35.6%	38.6%
	4 - AGREE	Count	216	159	375
		% within Year	34.6%	32.0%	33.5%
	5 - STRONGLY AGREE	Count	60	79	139
		% within Year	9.6%	15.9%	12.4%
Total		Count	624	497	1121
		% within Year	100.0%	100.0%	100.0%

Group Statistics

Year		N	Mean	Std. Deviation	Std. Error Mean
Q13F	2006	624	3.36	.927	.037
	2010	497	3.44	1.020	.046

p-value: .170

Q13G. I feel safe and supported in a team environment.

Q13G * Year Crosstabulation

			Year		
			2006	2010	Total
Q13G	1 - STRONGLY DISAGREE	Count	27	20	47
		% within Year	4.3%	4.0%	4.2%
	2 - DISAGREE	Count	73	50	123
		% within Year	11.7%	10.0%	11.0%
	3 - NEUTRAL	Count	226	189	415
		% within Year	36.3%	38.0%	37.0%
	4 - AGREE	Count	235	175	410
		% within Year	37.7%	35.1%	36.6%
	5 - STRONGLY AGREE	Count	62	64	126
		% within Year	10.0%	12.9%	11.2%
Total		Count	623	498	1121
		% within Year	100.0%	100.0%	100.0%

Group Statistics

Year		N	Mean	Std. Deviation	Std. Error Mean
Q13G	2006	623	3.37	.964	.039
	2010	498	3.43	.972	.044

p-value: .342

Q13H. It is clear to me why working on teams is critical to my education.

Q13H * Year Crosstabulation

			Year		
			2006	2010	Total
Q13H	1 - STRONGLY DISAGREE	Count	18	12	30
		% within Year	2.9%	2.4%	2.7%
	2 - DISAGREE	Count	18	24	42
		% within Year	2.9%	4.8%	3.8%
	3 - NEUTRAL	Count	114	78	192
		% within Year	18.3%	15.7%	17.1%
	4 - AGREE	Count	305	222	527
		% within Year	49.0%	44.7%	47.1%
	5 - STRONGLY AGREE	Count	168	161	329
		% within Year	27.0%	32.4%	29.4%
Total		Count	623	497	1120
		% within Year	100.0%	100.0%	100.0%

Group Statistics

Year		N	Mean	Std. Deviation	Std. Error Mean
Q13H	2006	623	3.94	.909	.036
	2010	497	4.00	.945	.042

p-value: .316

Section 4:
Indicate your level of agreement from strongly disagree to strongly agree for each of the following statements:
The negative aspects with teamwork at Lawrence Tech

are… Q14A. Competition within group for better grades.

Q14A * Year Crosstabulation

			Year		
			2006	2010	Total
Q14A	1 - STRONGLY DISAGREE	Count	76	72	148
		% within Year	12.4%	14.3%	13.2%
	2 - DISAGREE	Count	228	181	409
		% within Year	37.1%	35.9%	36.6%
	3 - NEUTRAL	Count	178	154	332
		% within Year	28.9%	30.6%	29.7%
	4 - AGREE	Count	102	75	177
		% within Year	16.6%	14.9%	15.8%
	5 - STRONGLY AGREE	Count	31	22	53
		% within Year	5.0%	4.4%	4.7%
Total		Count	615	504	1119
		% within Year	100.0%	100.0%	100.0%

Group Statistics

Year		N	Mean	Std. Deviation	Std. Error Mean
Q14A	2006	615	2.65	1.054	.043
	2010	504	2.59	1.044	.046

p-value: .362

Q14B. Personal ego of team members dominates over cooperation.

Q14B * Year Crosstabulation

			Year		
			2006	2010	Total
Q14B	1 - STRONGLY DISAGREE	Count	26	31	57
		% within Year	4.2%	6.2%	5.1%
	2 - DISAGREE	Count	130	145	275
		% within Year	21.1%	28.8%	24.6%
	3 - NEUTRAL	Count	210	162	372
		% within Year	34.1%	32.1%	33.2%
	4 - AGREE	Count	189	125	314
		% within Year	30.7%	24.8%	28.1%
	5 - STRONGLY AGREE	Count	60	41	101
		% within Year	9.8%	8.1%	9.0%
Total		Count	615	504	1119
		% within Year	100.0%	100.0%	100.0%

Group Statistics

Year		N	Mean	Std. Deviation	Std. Error Mean
Q14B	2006	615	3.21	1.018	.041
	2010	504	3.00	1.053	.047

p-value: .001

Q14C. Focus on the problem solving outcome only and not the educational experience.

Q14C * Year Crosstabulation

			Year		
			2006	2010	Total
Q14C	1 - STRONGLY DISAGREE	Count	25	18	43
		% within Year	4.1%	3.6%	3.8%
	2 - DISAGREE	Count	97	104	201
		% within Year	15.7%	20.7%	18.0%
	3 - NEUTRAL	Count	251	195	446
		% within Year	40.7%	38.8%	39.9%
	4 - AGREE	Count	194	143	337
		% within Year	31.5%	28.5%	30.1%
	5 - STRONGLY AGREE	Count	49	42	91
		% within Year	8.0%	8.4%	8.1%
Total		Count	616	502	1118
		% within Year	100.0%	100.0%	100.0%

Group Statistics

Year		N	Mean	Std. Deviation	Std. Error Mean
Q14C	2006	616	3.24	.948	.038
	2010	502	3.17	.971	.043

p-value: .282

Q14D. Lack of bonding with team members.

Q14D * Year Crosstabulation

			Year		
			2006	2010	Total
Q14D	1 - STRONGLY DISAGREE	Count	37	28	65
		% within Year	6.0%	5.6%	5.8%
	2 - DISAGREE	Count	156	152	308
		% within Year	25.3%	30.3%	27.6%
	3 - NEUTRAL	Count	255	183	438
		% within Year	41.4%	36.5%	39.2%
	4 - AGREE	Count	129	109	238
		% within Year	20.9%	21.8%	21.3%
	5 - STRONGLY AGREE	Count	39	29	68
		% within Year	6.3%	5.8%	6.1%
Total		Count	616	501	1117
		% within Year	100.0%	100.0%	100.0%

Group Statistics

Year		N	Mean	Std. Deviation	Std. Error Mean
Q14D	2006	616	2.96	.978	.039
	2010	501	2.92	.986	.044

p-value: .451

Q14E. Inability to schedule meeting times.

Q14E * Year Crosstabulation

			Year		
			2006	2010	Total
Q14E	1 - STRONGLY DISAGREE	Count	17	18	35
		% within Year	2.8%	3.6%	3.2%
	2 - DISAGREE	Count	83	95	178
		% within Year	13.6%	19.0%	16.0%
	3 - NEUTRAL	Count	180	129	309
		% within Year	29.5%	25.8%	27.8%
	4 - AGREE	Count	219	180	399
		% within Year	35.8%	36.0%	35.9%
	5 - STRONGLY AGREE	Count	112	78	190
		% within Year	18.3%	15.6%	17.1%
Total		Count	611	500	1111
		% within Year	100.0%	100.0%	100.0%

Group Statistics

Year		N	Mean	Std. Deviation	Std. Error Mean
Q14E	2006	611	3.53	1.028	.042
	2010	500	3.41	1.073	.048

p-value: .051

Q14F. Teamwork requires too much effort and time and is not productive.

Q14F * Year Crosstabulation

			Year		
			2006	2010	Total
Q14F	1 - STRONGLY DISAGREE	Count	59	57	116
		% within Year	9.6%	11.4%	10.4%
	2 - DISAGREE	Count	216	173	389
		% within Year	35.2%	34.6%	35.0%
	3 - NEUTRAL	Count	190	147	337
		% within Year	31.0%	29.4%	30.3%
	4 - AGREE	Count	111	81	192
		% within Year	18.1%	16.2%	17.3%
	5 - STRONGLY AGREE	Count	37	42	79
		% within Year	6.0%	8.4%	7.1%
Total		Count	613	500	1113
		% within Year	100.0%	100.0%	100.0%

Group Statistics

Year		N	Mean	Std. Deviation	Std. Error Mean
Q14F	2006	613	2.76	1.050	.042
	2010	500	2.76	1.115	.050

p-value: .989

Q14G. Difficulty in determining individual or group roles and responsibilities.

Q14G * Year Crosstabulation

			Year		
			2006	2010	Total
Q14G	1 - STRONGLY DISAGREE	Count	33	35	68
		% within Year	5.4%	6.9%	6.1%
	2 - DISAGREE	Count	176	159	335
		% within Year	28.7%	31.5%	30.0%
	3 - NEUTRAL	Count	233	185	418
		% within Year	37.9%	36.7%	37.4%
	4 - AGREE	Count	140	98	238
		% within Year	22.8%	19.4%	21.3%
	5 - STRONGLY AGREE	Count	32	27	59
		% within Year	5.2%	5.4%	5.3%
Total		Count	614	504	1118
		% within Year	100.0%	100.0%	100.0%

Group Statistics

Year		N	Mean	Std. Deviation	Std. Error Mean
Q14G	2006	614	2.94	.967	.039
	2010	504	2.85	.990	.044

p-value: .122

Q15. When considering my overall teamwork experiences at Lawrence Tech, I consider my grades for teamwork to be…

Q15 * Year Crosstabulation

			Year		
			2006	2010	Total
Q15	1 - Mixed opinion	Count	53	14	67
		% within Year	8.6%	2.8%	6.0%
	2 - Lower than deserved	Count	63	78	141
		% within Year	10.2%	15.4%	12.6%
	3 - Fair	Count	475	390	865
		% within Year	77.1%	77.2%	77.2%
	4 - Higher than deserved	Count	25	23	48
		% within Year	4.1%	4.6%	4.3%
Total		Count	616	505	1121
		% within Year	100.0%	100.0%	100.0%

Mann-Whitney Ranks

Year		N	Mean Rank	Sum of Ranks
Q15	2006	616	555.86	342408.50
	2010	505	567.27	286472.50
	Total	1121		

p-value: .423

Q16. Your experience in teamwork assignments in courses at Lawrence Tech, with respect to your education would be described as…

Q16 * Year Crosstabulation

			Year		
			2006.00	2010.00	Total
Q16. Your experience in teamwork assignments in courses at Lawrence Tech, with respect to your education would be descri	1 - Very detrimental	Count	6	0	6
		% within Year	1.0%	.0%	.5%
	2 - Detrimental	Count	30	19	49
		% within Year	4.9%	3.8%	4.4%
	3 - Neutral	Count	106	92	198
		% within Year	17.3%	18.3%	17.8%
	4 - Beneficial but not necessary	Count	219	197	416
		% within Year	35.8%	39.2%	37.3%
	5 - Necessary	Count	250	195	445
		% within Year	40.9%	38.8%	39.9%
Total		Count	611	503	1114
		% within Year	100.0%	100.0%	100.0%

Mann-Whitney Ranks

	Year	N	Mean Rank	Sum of Ranks
Q16. Your experience in teamwork assignments in courses at Lawrence Tech, with respect to your education would be descri	2006.00	647	591.08	382429.00
	2010.00	530	586.46	310824.00
	Total	1177		

p-value: .805

Q17. Overall, your team experiences in courses at Lawrence Tech would be described as…

Q17 * Year Crosstabulation

			Year		
			2006	2010	Total
Q17	1 - Very negative	Count	12	12	24
		% within Year	1.9%	2.4%	2.1%
	2 - Somewhat negative	Count	51	38	89
		% within Year	8.3%	7.5%	7.9%
	3 - Neutral	Count	112	104	216
		% within Year	18.2%	20.6%	19.3%
	4 - Somewhat positive	Count	328	251	579
		% within Year	53.2%	49.8%	51.7%
	5 - Very positive	Count	114	99	213
		% within Year	18.5%	19.6%	19.0%
Total		Count	617	504	1121
		% within Year	100.0%	100.0%	100.0%

Mann-Whitney Ranks

Year		N	Mean Rank	Sum of Ranks
Q17	2006	617	562.75	347219.00
	2010	504	558.85	281662.00
	Total	1121		

p-value: .827

Q18. Have you engaged in teamwork as part of a student organization, student group, or an enrichment opportunity outside of class?

Q18 * Year Crosstabulation

			Year		
			2006	2010	Total
Q18	1 - No	Count	286	224	510
		% within Year	46.4%	44.7%	45.7%
	2 - Yes	Count	330	277	607
		% within Year	53.6%	55.3%	54.3%
Total		Count	616	501	1117
		% within Year	100.0%	100.0%	100.0%

Mann-Whitney Ranks

Year		N	Mean Rank	Sum of Ranks
Q18	2006	616	554.70	341693.00
	2010	501	564.29	282710.00
	Total	1117		

p-value: .567

Q19. If you answered yes to question #18, how often would you describe the teamwork experience as positive?

Q19 * Year Crosstabulation

			Year		
			2006	2010	Total
Q19	1 - Never	Count	2	3	5
		% within Year	.6%	1.0%	.8%
	2 - Almost never	Count	5	6	11
		% within Year	1.5%	2.0%	1.7%
	3 - Half of the time	Count	61	54	115
		% within Year	17.8%	18.2%	18.0%
	4 - Most of the time	Count	216	174	390
		% within Year	63.0%	58.6%	60.9%
	5 - Always	Count	59	60	119
		% within Year	17.2%	20.2%	18.6%
Total		Count	343	297	640
		% within Year	100.0%	100.0%	100.0%

Group Statistics

Year		N	Mean	Std. Deviation	Std. Error Mean
Q19	2006	343	3.95	.678	.037
	2010	297	3.95	.745	.043

p-value: .972

Q20. If you answered yes to question #18, your teamwork experiences outside of class at Lawrence Tech, with respect to your education would be described as…

Q20 * Year Crosstabulation

			Year		
			2006	2010	Total
Q20	1 - Very detrimental	Count	3	0	3
		% within Year	.9%	.0%	.5%
	2 - Detrimental	Count	8	7	15
		% within Year	2.4%	2.4%	2.4%
	3 - Neutral	Count	59	54	113
		% within Year	17.4%	18.6%	18.0%
	4 - Beneficial but not necessary	Count	158	131	289
		% within Year	46.6%	45.2%	45.9%
	5 - Necessary	Count	111	98	209
		% within Year	32.7%	33.8%	33.2%
Total		Count	339	290	629
		% within Year	100.0%	100.0%	100.0%

Mann-Whitney Ranks

Year		N	Mean Rank	Sum of Ranks
Q20	2006	339	313.87	106402.00
	2010	290	316.32	91733.00
	Total	629		

p-value: .856

Annual Assessment Reports of Colleges by Department

College of Architecture and Design

BS in Architecture

University Undergraduate Goals	Supporting Program Objective/Outcome	Assessment Tools	Metrics/Indicators	Administration Timeline	Loop-Closing Timeline
I. 1. Graduates will demonstrate knowledge, and expertise in applying this knowledge, in their fields.	Most of the prog objectives below	Class Assignments, examinations, design project work, documentation, class participation	Std. deviation for tests Internal & external jury for projects	Every semester	Annual
I. 2. Graduates will demonstrate effective use of technology and the ability to apply it in their fields.	Obj. 2, 3, 4, 5, 23, 26	Class Assignments, examinations, design project work, documentation, class participation, cap-stone projects	Std. deviation for tests Internal & external jury for projects	Every semester	Annual
II. 1. Graduates will be literate and skilled in written and oral communication.	Obj 1 & 3	Writing assignments Technical papers COM 3000	Writing Proficiency Exam	Every semester	Annual
II. 2. Graduates will be aware of the diverse basis of our culture and will demonstrate both breadth and depth in the arts and the humanities.	Obj. 8, 9, 10, 12, 13	Class Assignments, examinations, design project work, documentation, class participation, cap-stone projects	Std. deviation for tests Internal & external jury for projects	Every semester	Annual
II. 3. Graduates will be aware of the foundations and development of American society.	Obj. 8, 31, 32	Class Assignments, examinations, design project work, class participation, cap-stone projects	CoAD core curriculum courses	Every semester	Annual

II. 4. Graduates will demonstrate competence in mathematics and in the use of the scientific method and laboratory technique.	Obj. 2, 3, 4, 5, 18, 19	Class Assignments, examinations, design project work, class participation, cap-stone projects Group projects in research	Std. deviation for tests Internal & external jury for projects	Every semester	Annual
II. 5. Graduates will demonstrate creativity and critical thinking, as well as analytical and problem solving skills consistent with the technological focus of the University.	Obj. 18, 19, 20, 21, 22, 23, 26	Class Assignments, examinations, design project work, class participation, cap-stone projects Group projects in research	Std. deviation for tests Internal & external jury for projects	Every semester	Annual
III. 1. Graduates will have had experiences that promote a high level of professionalism and integrity, responsible decision making, confidence in approaching opportunities, and pride in their abilities.	Obj. 29, 30, 31, 32	Cap-stone and senior level projects Field projects and case studies Group projects in research	Internal & external jury for projects	Every semester	Annual
III. 2. Graduates will have had experiences that promote the understanding of themselves and others, sensitivity to other cultures in the context of globalization, and interpersonal skills.	Obj. 12, 13	Class Assignments, examinations, design project work, class participation	Internal & external jury for group projects.	Every semester	Annual
III. 3. Graduates will have had experiences that promote the ability to analyze unfamiliar situations, assess risk, and formulate plans of action.	Obj. 2, 31, 32, 34	Cap-stone and senior level projects Field projects and case studies Group projects in research	Internal & external jury for group projects Peer evaluation for group projects	Every semester	Annual

III.4. Graduates will have been made aware of the importance of lifelong learning.	Obj. 31, 32	Cap-stone and senior level projects Field projects and case studies	Students & Alumni surveys	Every semester	Annual
III.5. Graduates will have had experiences that promote a global and societal perspective.	8, 9, 10, 11, 32	CoAD core curriculum courses	Students & Alumni surveys	Every semester	Annual
IV.1. Graduates will have had defined roles in teamwork experiences in which both process and progress are monitored.	Obj. 7, 32	Group assignments Group projects in design Group projects in research	Internal & external jury for group projects Peer evaluation for group projects	Every semester	Annual
IV.2. Graduates will have had team experiences in which they focus on a common goal, take responsibility for their own contributions as well as for the team's product, and evaluate one another's contribution to the team.	Obj. 7, 30	Group assignments Group projects in design Group projects in research	Internal & external jury for group projects Peer evaluation for group projects	Every semester	Annual
IV.3. Graduates will have had team experiences in which they practice making decisions, reaching consensus, and resolving conflicts.	Obj. 7, 31, 33	Group assignments Group projects in design Group projects in research	Internal & external jury for group projects Peer evaluation for group projects	Every semester	Annual
V. 1. Graduates will have had opportunities to learn the value of contributing to their community and to society.	Obj. 29, 31, 33	Field projects and case studies	- Voluntary programs participation e.g. Habitat for Humanity - Alumni Surveys	Every semester if there is a chance by the organization	Annual

V. 2. Graduates will have had opportunities to develop personal values as the foundation of integrity and professional ethics.	Obj. 29, 32, 34	Cap-stone and senior level projects Field projects and case studies Group projects in design Group projects in research		Every semester	Annual

Program Objectives and Performance Criteria

1. Speaking and writing skills
2. Critical thinking skills
3. Graphics skills
4. Research skills
5. Formal ordering systems
6. Fundamental design skills
7. Collaboration skills
8. Western traditions
9. Non-western traditions
10. National and regional traditions
11. Use of precedents
12. Human behavior
13. Human diversity
14. Bldg design accessibility
15. Sustainable design
16. Design programming preparation
17. Site conditions
18. Structural systems
19. Environmental systems
20. Life safety
21. Bldg envelope systems
22. Bldg service systems
23. Bldg systems integration
24. Bldg materials and assemblies
25. Construction cost control
26. Technical documentation
27. Client role in architecture
28. Comprehensive design
29. Architect's administrative role
30. Architectural practice
31. Professional development
32. Leadership
33. Legal responsibilities
34. Ethics and professional judgment

Art & Design Department

University Undergraduate Goals	Supporting Program Objective/Outcome	Assessment Tools	Metrics/Indicators	Administration Timeline	Loop-Closing Timeline
I. 1. Graduates will demonstrate knowledge, and expertise in applying this knowledge, in their fields.	Analyze a proposed project and develop a design that meets customer/client objectives.	- Direct assessment of student project execution by instructor and faculty jury. - Industry evaluation of student presentation and progress.	Currently in progress, developing the CoAD LDR Portfolio and Rubrics requirements.	Every semester	Annual
I. 2. Graduates will demonstrate effective use of technology and the ability to apply it in their fields.	Showcase projects using industry tools (CS4 and other programs) and integration of technology into the concept.	- Direct assessment of student project execution by instructor and faculty jury. - Industry evaluation of student presentation and progress.	Currently in progress, developing the CoAD LDR Portfolio and Rubrics requirements.	Every semester	Annual
II. 1. Graduates will be literate and skilled in written and oral communication.	Compose and integrate project summarizes into a portfolio and presentation that requires verbal, written, and graphic communication to an audience.	- Direct assessment of student project execution by instructor and faculty jury. - Industry evaluation of student presentation and progress.	Currently in progress, developing the CoAD LDR Portfolio and Rubrics requirements.	Every semester	Annual
II. 2. Graduates will be aware of the diverse basis of our culture and will demonstrate both breadth and depth in the arts and the humanities.	Research and incorporate perspectives that highlight an approach to explain and defend a proposal.	- Direct assessment of student project execution by instructor and faculty jury. - Industry evaluation of student presentation and progress.	Currently in progress, developing the CoAD LDR Portfolio and Rubrics requirements.	Every semester	Annual
II. 3. Graduates will be aware of the foundations and development of American society.	Industry projects with international companies due to the geographic location of university and importance of American culture and market.	- Direct assessment of student project execution by instructor and faculty jury. - Industry evaluation of student presentation and progress.	Currently in progress, developing the CoAD LDR Portfolio and Rubrics requirements.	Every semester	Annual

II. 4. Graduates will demonstrate competence in mathematics and in the use of the scientific method and laboratory technique.	Research advances and new technology development to apply in product concepts.	- Direct assessment of student project execution by instructor and faculty jury. - Industry evaluation of student presentation and progress.	Currently in progress, developing the CoAD LDR Portfolio and Rubrics requirements.	Every semester	Annual
II. 5. Graduates will demonstrate creativity and critical thinking, as well as analytical and problem solving skills consistent with the technological focus of the University.	Develop business case and critical thinking to solve design problems and market challenges for a product.	- Direct assessment of student project execution by instructor and faculty jury. - Industry evaluation of student presentation and progress.	Currently in progress, developing the CoAD LDR Portfolio and Rubrics requirements.	Every semester	Annual
III. 1. Graduates will have had experiences that promote a high level of professionalism and integrity, responsible decision making, confidence in approaching opportunities, and pride in their abilities.	***Analyze*** a proposed project and ***develop*** a design that ***meets*** customer/client objectives.	- Direct assessment of student project execution by instructor and faculty jury. - Industry evaluation of student presentation and progress.	Currently in progress, developing the CoAD LDR Portfolio and Rubrics requirements.	Every semester	Annual
III. 2. Graduates will have had experiences that promote the understanding of themselves and others, sensitivity to other cultures in the context of globalization, and interpersonal skills.	***Analyze*** a proposed project and ***develop*** a design that ***meets*** customer/client objectives.	- Direct assessment of student project execution by instructor and faculty jury. - Industry evaluation of student presentation and progress.	Currently in progress, developing the CoAD LDR Portfolio and Rubrics requirements.	Every semester	Annual
III. 3. Graduates will have had experiences that promote the ability to analyze unfamiliar situations, assess risk, and formulate plans of action.	***Formulate*** an action plan between the current state and expected result to illustrate logic and problem solving.	- Direct assessment of student project execution by instructor and faculty jury. - Industry evaluation of student presentation and progress.	Currently in progress, developing the CoAD LDR Portfolio and Rubrics requirements.	Every semester	Annual

III.4. Graduates will have been made aware of the importance of lifelong learning.	Demonstrate the ability for self-directed learning and identify additional knowledge, skills and attitudes appropriate for continued professional practice.	- Direct assessment of student project execution by instructor and faculty jury. - Industry evaluation of student presentation and progress.	Currently in progress, developing the CoAD LDR Portfolio and Rubrics requirements.	Every semester	Annual
III.5. Graduates will have had experiences that promote a global and societal perspective.	***Analyze*** a proposed project and ***develop*** a design that ***meets*** customer/client objectives.	- Direct assessment of student project execution by instructor and faculty jury. - Industry evaluation of student presentation and progress.	Currently in progress, developing the CoAD LDR Portfolio and Rubrics requirements.	Every semester	Annual
IV.1. Graduates will have had defined roles in teamwork experiences in which both process and progress are monitored.	***Collaborate*** on projects or segments of a project as a team. (team project on company historical research). Junior level courses require teams to develop concepts and submit to competition.	- Direct assessment of student project execution by instructor and faculty jury. - Industry evaluation of student presentation and progress.	Currently in progress, developing the CoAD LDR Portfolio and Rubrics requirements.	Every semester	Annual
IV.2. Graduates will have had team experiences in which they focus on a common goal, take responsibility for their own contributions as well as for the team's product, and evaluate one another's contribution to the team.	***Collaborate*** on projects or segments of a project as a team. (team project on company historical research). Junior level courses require teams to develop concepts and submit to competition.	- Direct assessment of student project execution by instructor and faculty jury. - Industry evaluation of student presentation and progress.	Currently in progress, developing the CoAD LDR Portfolio and Rubrics requirements.	Every semester	Annual
IV.3. Graduates will have had team experiences in which they practice making decisions, reaching consensus, and resolving conflicts.	***Collaborate*** on projects or segments of a project as a team. (team project on company historical research). Junior level courses require teams to develop concepts and submit to competition.	- Direct assessment of student project execution by instructor and faculty jury. - Industry evaluation of student presentation and progress.	Currently in progress, developing the CoAD LDR Portfolio and Rubrics requirements.	Every semester	Annual

V. 1. Graduates will have had opportunities to learn the value of contributing to their community and to society.	***Analyze*** a proposed project and ***develop*** a design that ***meets*** customer/client objectives.	- Direct assessment of student project execution by instructor and faculty jury. - Industry evaluation of student presentation and progress.	Currently in progress, developing the CoAD LDR Portfolio and Rubrics requirements.	Every semester	Annual
V. 2. Graduates will have had opportunities to develop personal values as the foundation of integrity and professional ethics.	Develop Legacy project in LDR 2001.	- Direct assessment of student project execution by instructor and faculty jury. - Industry evaluation of student presentation and progress.	Currently in progress, developing the CoAD LDR Portfolio and Rubrics requirements.	Every semester	Annual

College of Arts and Sciences

BS in Humanities

Goals (University)	Supporting Program Objective/Outcome	Assessment Tools	Metrics/Indicators	Administration Timeline
I. 1. Graduates will demonstrate knowledge, and expertise in applying this knowledge, in their fields.	Demonstrate a level of cultural literacy matching that of graduates from comparable programs at benchmark institutions.	1. Course design evaluation 2. Embedded assessment of student work 3. Class visitations/ instructor mentoring 4. Graduate interviews	1. Faculty judgment 2. Faculty judgment 3. Chair's evaluation 4. Chair's evaluation	1. Permanent / on-going 2. Last done in 2006 3. Annual 4. Last done in 2005
I. 2. Graduates will demonstrate effective use of technology and the ability to apply it in their fields.				
II. 1. Graduates will be literate and skilled in written and oral communication.	Demonstrate the ability to read and analyze challenging texts Demonstrate the poise to articulate their ideas orally and in writing	1. Course design evaluation 2. Embedded assessment of student work 3. Class visitations/ instructor mentoring 4. Graduate interviews	1. Faculty judgment 2. Faculty judgment 3. Chair's evaluation 4. Chair's evaluation	1. Permanent / on-going 2. Last done in 2006 3. Annual 4. Last done in 2005
II. 2. Graduates will be aware of the diverse basis of our culture and will demonstrate both breadth and depth in the arts and the humanities.	Demonstrate a level of cultural literacy matching that of graduates from comparable programs at benchmark institutions.	1. Course design evaluation 2. Embedded assessment of student work 3. Class visitations/ instructor mentoring 4. Graduate interviews	1. Faculty judgment 2. Faculty judgment 3. Chair's evaluation 4. Chair's evaluation	1. Permanent / on-going 2. Last done in 2006 3. Annual 4. Last done in 2005
II. 3. Graduates will be aware of the foundations and development of American society.	Demonstrate an understanding of their past and their role as citizens of a free society	1. Course design evaluation 2. Embedded assessment of student work 3. Class visitations/ instructor mentoring 4. Graduate interviews	1. Faculty judgment 2. Faculty judgment 3. Chair's evaluation 4. Chair's evaluation	1. Permanent / on-going 2. Last done in 2006 3. Annual 4. Last done in 2005

II. 4. Graduates will demonstrate competence in mathematics and in the use of the scientific method and laboratory technique.				
II. 5. Graduates will demonstrate creativity and critical thinking, as well as analytical and problem solving skills consistent with the technological focus of the University.	Demonstrate the skill to evaluate conflicting points of view. Demonstrate the savvy to look for alternative solutions Demonstrate the confidence to be creative.	1. Course design evaluation 2. Embedded assessment of student work 3. Class visitations/ instructor mentoring 4. Graduate interviews	1. Faculty judgment 2. Faculty judgment 3. Chair's evaluation 4. Chair's evaluation	1. Permanent / on-going 2. Last done in 2006 3. Annual 4. Last done in 2005
III. 1. Graduates will have had experiences that promote a high level of professionalism and integrity, responsible decision making, confidence in approaching opportunities, and pride in their abilities.				
III. 2. Graduates will have had experiences that promote the understanding of themselves and others, sensitivity to other cultures in the context of globalization, and interpersonal skills.	Demonstrate a level of cultural literacy matching that of graduates from comparable programs at benchmark institutions. Demonstrate an understanding of their past and their role as citizens of a free society. Demonstrate the experience of working in teams and of having to take the lead	1. Course design evaluation 2. Embedded assessment of student work 3. Class visitations/ instructor mentoring 4. Graduate interviews	1. Faculty judgment 2. Faculty judgment 3. Chair's evaluation 4. Chair's evaluation	1. Permanent / on-going 2. Last done in 2006 3. Annual 4. Last done in 2005

III.3. Graduates will have had experiences that promote the ability to analyze unfamiliar situations, assess risk, and formulate plans of action.	Demonstrate the savvy to look for alternative solutions Demonstrate the confidence to be creative.	1. Course design evaluation 2. Embedded assessment of student work 3. Class visitations/ instructor mentoring 4. Graduate interviews	1. Faculty judgment 2. Faculty judgment 3. Chair's evaluation 4. Chair's evaluation	1. Permanent / on-going 2. Last done in 2006 3. Annual 4. Last done in 2005
III.4. Graduates will have been made aware of the importance of lifelong learning.				
III.5. Graduates will have had experiences that promote a global and societal perspective.	Demonstrate a level of cultural literacy matching that of graduates from comparable programs at benchmark institutions. Demonstrate an understanding of their past and their role as citizens of a free society.	1. Course design evaluation 2. Embedded assessment of student work 3. Class visitations/ instructor mentoring 4. Graduate interviews	1. Faculty judgment 2. Faculty judgment 3. Chair's evaluation 4. Chair's evaluation	1. Permanent / on-going 2. Last done in 2006 3. Annual 4. Last done in 2005
IV.1. Graduates will have had defined roles in teamwork experiences in which both process and progress are monitored.	Demonstrate the experience of working in teams and of having to take the lead. Demonstrate the skill to evaluate conflicting points of view. Demonstrate the savvy to look for alternative solutions	1. Course design evaluation 2. Embedded assessment of student work 3. Class visitations/ instructor mentoring 4. Graduate interviews	1. Faculty judgment 2. Faculty judgment 3. Chair's evaluation 4. Chair's evaluation	1. Permanent / on-going 2. Last done in 2006 3. Annual 4. Last done in 2005
IV.2. Graduates will have had team experiences in which they focus on a common goal, take responsibility for their own contributions as well as for the team's product, and evaluate one another's contribution to the team.				

IV.3. Graduates will have had team experiences in which they practice making decisions, reaching consensus, and resolving conflicts.				
V. 1. Graduates will have had opportunities to learn the value of contributing to their community and to society.	Demonstrate an understanding of their past and their role as citizens of a free society.	1. Course design evaluation 2. Embedded assessment of student work 3. Class visitations/ instructor mentoring 4. Graduate interviews	1. Faculty judgment 2. Faculty judgment 3. Chair's evaluation 4. Chair's evaluation	1. Permanent / on-going 2. Last done in 2006 3. Annual 4. Last done in 2005
V. 2. Graduates will have had opportunities to develop personal values as the foundation of integrity and professional ethics.				

BS in Media Communication

University Undergraduate Goals	Supporting Program Objective/Outcome	Assessment Tools	Metrics/Indicators	Administration Timeline	Loop-Closing Timeline
I. 1. Graduates will demonstrate knowledge, and expertise in applying this knowledge, in their fields.	Utilize technical and creative expertise in a variety of broadcast and video projects	Direct assessment of student assignments per instructor Fulfillment of all Television & Video Production based courses	Level 5 on technical assessment rubric	Every semester. Every semester Every semester	Annual Annual Every two years.
I. 2. Graduates will demonstrate effective use of technology and the ability to apply it in their fields.	***Apply*** video and editing techniques to produce a cohesive and technically superior video project	Direct assessment of student assignments. Advisory Board evaluation of senior projects.	Level 3 on direct assessment rubric. Level 5 on technical presentation rubric.	Every semester Spring semester	Annual Annual
II. 1. Graduates will be literate and skilled in written and oral communication.	***Plan, compose,*** and ***integrate*** verbal, written, virtual, and communication of a project to technical and non-technical audiences.	Advisory Board & faculty evaluation of senior project presentations. WPE HSSC core curriculum	Level 3 on presentation rubric Pass the WPE Pass HSSC core curriculum courses	Spring semester Every semester	Annual Continuous by University
II. 2. Graduates will be aware of the diverse basis of our culture and will demonstrate both breadth and depth in the arts and the humanities.	Students will interview ESL and International students 2X and write a paper on their perceptions before and after the interview	Papers will be reviewed by instructor, program director and chair	Pass HSSC core curriculum courses	Every semester in 2 courses	

II. 3. Graduates will be aware of the foundations and development of American society.					
II. 4. Graduates will demonstrate competence in mathematics and in the use of the scientific method and laboratory technique.					
II. 5. Graduates will demonstrate creativity and critical thinking, as well as analytical and problem solving skills consistent with the technological focus of the University.	Apply critical thinking and creativity to a variety of written, broadcast and video projects	HSSC core curriculum SSC Ethics	Pass HSSC core curriculum Pass SSC Ethics Evaluation by instructors of video projects	Every semester courses are offered	Annual
III. 1. Graduates will have had experiences that promote a high level of professionalism and integrity, responsible decision-making, confidence in approaching opportunities, and pride in their abilities.					

III.2. Graduates will have had experiences that promote the understanding of themselves and others, sensitivity to other cultures in the context of globalization, and interpersonal skills.					
III.3. Graduates will have had experiences that promote the ability to analyze unfamiliar situations, assess risk, and formulate plans of action.					
III.4. Graduates will have been made aware of the importance of lifelong learning.					
III.5. Graduates will have had experiences that promote a global and societal perspective.	Students will create: 30 sec promos for non-profit organizations, locally, nationally and globally	Non-profit organizations will evaluate outcome	Level 3 on direct assessment rubric	Every semester	Annual Annual
IV.1. Graduates will have had defined roles in teamwork experiences in which both process and progress are monitored.	***Function*** effectively as a member of an intra-disciplinary team and ***evaluate*** the performance of the team and individual team members	Team and instructor evaluation of written and video projects by the group	Level 3 on direct assessment rubric	In every technical course	Annual Annual

IV.2. Graduates will have had team experiences in which they focus on a common goal, take responsibility for their own contributions as well as for the team's product, and evaluate one another's contribution to the team.	***Function*** effectively as a member of an intra-disciplinary team and ***evaluate*** the performance of the team and individual team members	Team and instructor evaluation of written and video projects by the group	Level 5 on technical assessment rubric	In every technical course	Annual Annual
IV.3. Graduates will have had team experiences in which they practice making decisions, reaching consensus, and resolving conflicts.					
V. 1. Graduates will have had opportunities to learn the value of contributing to their community and to society.					
V. 2. Graduates will have had opportunities to develop personal values as the foundation of integrity and professional ethics.	***Explain*** the many aspects of professionalism and what it means to be a member of the communication (broadcast) profession and ***Analyze*** a situation involving multiple conflicting professional and ethical interests to determine an appropriate course of action.	Direct assessment of student assignments. SSC Ethics	Level33 on direct assessment rubric.	Every semester. Every semester	Annual Every two years.

BS in Psychology

Goals (University)	Supporting Program Objective/Outcome	Assessment Tools	Metrics/Indicators	Administration Timeline
I. 1. Graduates will demonstrate knowledge, and expertise in applying this knowledge, in their fields.	Demonstrate knowledge and understanding that represents breadth and depth in selected content areas of psychology (e.g., learning and cognition, biological psychology, developmental changes in behavior, major history and systems of psychology, etc.).	1. Course data 2. Individual projects/ performance assessment 3. Graduate interviews	1. Objective tests comprised of multiple choice and fill in the blank items, essay tests, and embedded assignments 2. Term papers, lab reports, oral presentations 3. Qualitative data analyzed by program director	1. Permanent / on-going 2. Permanent / on-going 3. Annual
I. 2. Graduates will demonstrate effective use of technology and the ability to apply it in their fields.	Demonstrate competence and ability to use appropriate software to produce understandable reports and posters in APA style, including use of statistical analysis software, internet and e-mail programs.	1. Individual projects / performance assessment 2. Collaboration 3. Summative performance assessment 4. Graduate interviews	1. Embedded assignments 2. Research teams, group projects, online group activities 3. Capstone experiences, portfolios 4. Qualitative data analyzed by program director	1. Permanent / on-going 2. Permanent / on-going 3. Permanent / on-going 4. Annual
II. 1. Graduates will be literate and skilled in written and oral communication.	Demonstrate oral and written communication skills in various formats and exhibit effective interpersonal communication skills.	1. Course data 2. Individual projects/ performance assessment 3. Collaboration 4. Summative performance assessment 5. Graduate interviews	1. Essay tests, and embedded assignments 2. Written products, oral presentations 3. Research teams, group projects 4. Internships in real-life settings with assessment by supervisor 5. Qualitative data analyzed by program director	1. Permanent / on-going 2. Permanent / on-going 3. Permanent / on-going 4. Permanent / on-going 5. Annual
II. 2. Graduates will be aware of the diverse basis of our culture and will demonstrate both breadth and depth in the arts and the humanities.	Demonstrate ability to interact effectively and sensitively with people of diverse abilities backgrounds and cultural perspectives, and ability to explain how individual differences influence beliefs, values, and interaction with others and vice versa.	1. Course data 2. Individual projects/ performance assessment 3. Graduate interviews 4. Satisfaction measures	1. Essay tests, and embedded assignments 2. Term papers, written products, oral presentations 3. Qualitative data analyzed by program director 4. Follow-up alumni interviews / surveys of employers and graduate school advisors	1. Permanent / on-going 2. Permanent / on-going 3. Annual 4. Pending
II. 3. Graduates will be aware of the foundations and development of American society.				

II. 4. Graduates will demonstrate competence in mathematics and in the use of the scientific method and laboratory technique.	Develop appropriate and testable hypothesis that includes reasonable controls, and ability to follow the APA ethics code in the treatment of human and nonhuman participants in the design, data collection, interpretation, and reporting of psychological research.	1. Individual projects/ performance assessment 2. Collaboration 3. Graduate interviews	1. Term papers, lab reports, oral presentations 2. Research teams, group projects, online group activities 3. Qualitative data analyzed by program director	1. Permanent / on-going 2. Permanent / on-going 3. Annual
II. 5. Graduates will demonstrate creativity and critical thinking, as well as analytical and problem solving skills consistent with the technological focus of the University.	Demonstrate effective use of critical thinking and reasoning to recognize, develop, defend, and criticize arguments and other persuasive appeals.	1. Individual projects/ performance assessment 2. Collaboration 3. Graduate interviews	1. Term papers, lab reports, oral presentations 2. Research teams, group projects, online group activities 3. Qualitative data analyzed by program director	1. Permanent / on-going 2. Permanent / on-going 3. Last completed in 2007
III. 1. Graduates will have had experiences that promote a high level of professionalism and integrity, responsible decision making, confidence in approaching opportunities, and pride in their abilities.	Demonstrate ability to apply knowledge of psychology when formulating career choices and demonstrate ability to identify the types of academic experience that will facilitate entry into the workforce, graduate studies, or both.	1. Individual projects/ performance assessment 2. Summative performance assessment 3. Graduate interviews	1. Authentic problem-solving situations and performance assessments that incorporate and foster student's career planning 2. Internships with assessment by supervisor 3. Qualitative data analyzed by program director	1. Permanent / on-going 2. Permanent / on-going 3. Annual
III. 2. Graduates will have had experiences that promote the understanding of themselves and others, sensitivity to other cultures in the context of globalization, and interpersonal skills.	Demonstrate reflection on personal experiences and apply psychological principles to promote personal development.	1. Course data 2. Individual projects/ performance assessment 3. Graduate interviews	1. Embedded assignments 2. Term papers, lab reports, oral presentations of authentic problem-solving situations 3. Qualitative data analyzed by program director	1. Permanent / on-going 2. Permanent / on-going 3. Annual
III. 3. Graduates will have had experiences that promote the ability to analyze unfamiliar situations, assess risk, and formulate plans of action.	Demonstrate effective use of critical thinking and reasoning to recognize novel situations and contexts.	1. Summative performance assessment 2. Collaboration 3. Graduate interviews	1. Internships with assessment by supervisor 2. Research teams, group projects, online group activities 3. Qualitative data analyzed by program director	1. Permanent / on-going 2. Permanent / on-going 3. Annual

III.4. Graduates will have been made aware of the importance of lifelong learning.				
III.5. Graduates will have had experiences that promote a global and societal perspective.	Demonstrate ability to interact effectively and sensitively with people of diverse abilities backgrounds and cultural perspectives, and ability to explain how individual differences influence beliefs, values, and interaction with others and vice versa.	1. Course data 2. Individual projects/ performance assessment 3. Graduate interviews 4. Satisfaction measures	1. Essay tests, and embedded assignments 2. Term papers, written products, oral presentations 3. Qualitative data analyzed by program director 4. Follow-up alumni interviews / surveys of employers and graduate school advisors	1. Permanent / on-going 2. Permanent / on-going 3. Annual 4. Pending
IV.1. Graduates will have had defined roles in teamwork experiences in which both process and progress are monitored.	Demonstrate ability to think critically with others, and work together to solve common problems.	1. Collaboration 2. Graduate interviews	1. Research teams, group projects, online group activities 2. Qualitative data analyzed by program director	1. Permanent / on-going 2. Annual
IV.2. Graduates will have had team experiences in which they focus on a common goal, take responsibility for their own contributions as well as for the team's product, and evaluate one another's contribution to the team.	Demonstrate ability to think critically with others, and work together to solve common problems.	1. Collaboration 2. Graduate interviews	1. Research teams, group projects, online group activities 2. Qualitative data analyzed by program director	1. Permanent / on-going 2. Annual
IV.3. Graduates will have had team experiences in which they practice making decisions, reaching consensus, and resolving conflicts.				

V. 1. Graduates will have had opportunities to learn the value of contributing to their community and to society.	Demonstrate knowledge and understanding that represents breadth and depth in selected content areas of psychology (e.g., learning and cognition, biological psychology, developmental changes in behavior, major history and systems of psychology, etc.).	1. Course data 2. Individual projects/ performance assessment 3. Graduate interviews	1. Objective tests comprised of multiple choice and fill in the blank items, essay tests, and embedded assignments 2. Term papers, lab reports, oral presentations 3. Qualitative data analyzed by program director	1. Permanent / on-going 2. Permanent / on-going 3. Last completed in 2007
V. 2. Graduates will have had opportunities to develop personal values as the foundation of integrity and professional ethics.	Demonstrate a reasonable skepticism and intellectual curiosity about causes of behavior, and recognize the necessity of ethical behavior in all aspects of the science and practice of psychology, including recognizing and respecting human diversity.	4. Individual projects/ performance assessment 5. Summative performance assessment 6. Graduate interviews	1. Term papers, lab reports, oral presentations that require students to resolve conflicts 2. Internships with assessment by supervisor 3. Qualitative data analyzed by program director	1. Permanent / on-going 2. Permanent / on-going 3. Annual

BS in Mathematics

University Undergraduate Goals	Supporting Program Objective/Outcome	Assessment Tools	Metrics/Indicators	Administration Timeline	Loop-Closing Timeline
I. 1. Graduates will demonstrate knowledge, and expertise in applying this knowledge, in their fields.	An ability to apply knowledge of mathematics appropriate to a problem. (1) An ability to *analyze* a problem, and *identify* and *define* the mathematical techniques appropriate to its solution. (2)	Direct assessment of student exams Direct assessment of student assignments	Level 3 on exam rubric Level 3 on assignment rubric	Annual	Annual
I. 2. Graduates will demonstrate effective use of technology and the ability to apply it in their fields.	An ability to *use* current and established techniques, skills, and tools necessary for applying mathematics. (9)	Direct assessment of student assignments	Level 3 on assignment rubric	Annual	Annual
II. 1. Graduates will be literate and skilled in written and oral communication.	An ability to *communicate* mathematical ideas and models effectively to a range of audiences both orally and in written form. (6)	Direct assessment of student projects WPE	Level 3 on oral and written presentation rubrics Pass WPE	Annual	Annual
II. 2. Graduates will be aware of the diverse basis of our culture and will demonstrate both breadth and depth in the arts and the humanities.					
II. 3. Graduates will be aware of the foundations and development of American society.					

II. 4. Graduates will demonstrate competence in mathematics and in the use of the scientific method and laboratory technique.	An ability to *analyze* a problem, and *identify* and *define* the mathematical techniques appropriate to its solution. (2)	Direct assessment of student assignments	Level 3 on assignment rubric	Annual	Annual
II. 5. Graduates will demonstrate creativity and critical thinking, as well as analytical and problem solving skills consistent with the technological focus of the University.	An ability to *design, implement,* and *evaluate* a mathematical model that satisfies specified requirements (3)	Direct assessment of student assignments	Level 3 on assignment rubric	Annual	Annual
III. 1. Graduates will have had experiences that promote a high level of professionalism and integrity, responsible decision-making, confidence in approaching opportunities, and pride in their abilities.					
III. 2. Graduates will have had experiences that promote the understanding of themselves and others, sensitivity to other cultures in the context of globalization, and interpersonal skills.					
III. 3. Graduates will have had experiences that promote the ability to analyze unfamiliar situations, assess risk, and formulate plans of action.					

III.4. Graduates will have been made aware of the importance of lifelong learning.					
III.5. Graduates will have had experiences that promote a global and societal perspective.					
IV.1. Graduates will have had defined roles in teamwork experiences in which both process and progress are monitored.	An ability to function effectively on teams to accomplish a common goal, including performing leadership tasks. (4)	Exit interview	Affirmative answers from 80% of interviewees.	Annual	Annual
IV.2. Graduates will have had team experiences in which they focus on a common goal, take responsibility for their own contributions as well as for the team's product, and evaluate one another's contribution to the team.	An ability to function effectively on teams to accomplish a common goal, including performing leadership tasks. (4)	Exit interview	Affirmative answers from 80% of interviewees.	Annual	Annual
IV.3. Graduates will have had team experiences in which they practice making decisions, reaching consensus, and resolving conflicts.					
V. 1. Graduates will have had opportunities to learn the value of contributing to their community and to society.					

V. 2. Graduates will have had opportunities to develop personal values as the foundation of integrity and professional ethics.					
	Additional Program Objectives/Outcomes	**Assessment Tools**	**Metrics / Indicators**	**Administration Timeline**	**Loop-Closing Timeline**
	An ability to *analyze* the local and global impact of models on individuals, organizations, and society.	Alumni survey	Level 3 on survey rubric	Annual (two years after graduation)	Annual
	Recognition of the need for and an ability to engage in life-long learning, continuing professional development and adapt to changes in the field.	Alumni survey	Level 3 on survey rubric	Annual (two years after graduation)	Annual
	Be able to *secure* employment and/or attend graduate school in mathematics or any field based on mathematics, drawing on their experiences, both within and outside the major to become responsible citizens and effective professionals. (10).	Alumni survey	Level 3 on survey rubric	Annual (two years after graduation)	Annual

BS in Computer Science

Goals (University)	**Supporting Program Objective / Outcome**	**Assessment Tools**	**Metrics / Indicators**	**Administration Timeline**	**Loop-Closing Timeline**
I. 1. Graduates will demonstrate knowledge, and expertise in applying this knowledge, in their fields.	*Apply* knowledge of computing and mathematics appropriate to the discipline *Display* a complete understanding of a computer language ((syntax, semantics and terminology), *develop* and *debug* complex code.	Direct assessment of standard questions on student final exams. Direct assessment of student assignments	Level 3 on direct assessment rubric	Annual	Annual
I. 2. Graduates will demonstrate effective use of technology and the ability to apply it in their fields.	*Apply* current techniques, skills, and tools necessary for computing practice.	Direct assessment of student work	Level 3 on direct assessment rubric	Annual	Annual
II. 1. Graduates will be literate and skilled in written and oral communication.	*Plan, create and integrate* oral and written communication of [mathematical and algorithmic ideas] effectively to audiences having a range of technical understanding.	Direct assessment of Senior Project oral and written reports WPE	Level 3 on oral and written rubrics Pass WPE	Annual	Annual
II. 2. Graduates will be aware of the diverse basis of our culture and will demonstrate both breadth and depth in the arts and the humanities.					
II. 3. Graduates will be aware of the foundations and development of American society.					

II. 4. Graduates will demonstrate competence in mathematics and in the use of the scientific method and laboratory technique.	*Apply* knowledge of computing and mathematics appropriate to the discipline	Direct assessment of standard questions on student final exams.	Level 3 on direct assessment rubric	Annual	Annual
II. 5. Graduates will demonstrate creativity and critical thinking, as well as analytical and problem solving skills consistent with the technological focus of the University.	*Design, implement,* and *evaluate* a computer-based system, process, component, or program to meet its specified requirements	Direct assessment of Senior Project written reports	Level 3 on direct assessment rubric	Annual	Annual
III. 1. Graduates will have had experiences that promote a high level of professionalism and integrity, responsible decision making, confidence in approaching opportunities, and pride in their abilities.					
III. 2. Graduates will have had experiences that promote the understanding of themselves and others, sensitivity to other cultures in the context of globalization, and interpersonal skills.					
III. 3. Graduates will have had experiences that promote the ability to analyze unfamiliar situations, assess risk, and formulate plans of action.					

III. 4. Graduates will have been made aware of the importance of lifelong learning.					
III. 5. Graduates will have had experiences that promote a global and societal perspective.					
IV.1. Graduates will have had defined roles in teamwork experiences in which both process and progress are monitored.	Function effectively on teams to accomplish a common goal.	Exit intervierw	Affirmative answers from 80% of interviewees.	Annual	Annual
IV.2. Graduates will have had team experiences in which they focus on a common goal, take responsibility for their own contributions as well as for the team's product, and evaluate one another's contribution to the team.	Function effectively on teams to accomplish a common goal	Exit interview	Affirmative answers from 80% of interviewees.	Annual	Annual
IV.3. Graduates will have had team experiences in which they practice making decisions, reaching consensus, and resolving conflicts.					
V. 2. Graduates will have had opportunities to develop personal values as the foundation of integrity and professional ethics.	Understand professional, ethical, legal, security and societal issues and responsibilities.				

	Additional Program Objectives/Outcomes	**Assessment Tools**	**Metrics/Indicators**	**Administration Timeline**	**Loop-Closing Timeline**
	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.	Alumni survey	Level 3 on survey rubric	Annual (two years after graduation)	Annual
	Recognize the need for and an ability to engage in continuing professional development [and learn new technologies] and adapt to changes in the field.	Alumni survey	Level 3 on survey rubric	Annual (two years after graduation)	Annual
	Analyze the local and global impact of computing on individuals, organizations, and society.	Alumni survey	Level 3 on survey rubric	Annual (two years after graduation)	Annual

MS in Computer Science

Program Objective / Outcome	**Assessment Tools**	**Metrics / Indicators**	**Administration Timeline**	**Loop-Closing Timeline**
Display a thorough understanding of the theoretical concepts and practical uses of computer science in two concentrations.	Direct assessment of student assignments	Level 3 on graduate assignment rubric	Annual	Annual
Be lifelong learners who are able to *master* new topics required to *understand* and *synthesize* solutions to novel problems, based on their technical knowledge of computer science and their ability to *think critically*	Alumni survey	Level 3 on survey rubric	Biennial	Biennial
Demonstrate a sufficient depth of knowledge in a substantive area of computer science to pursue advanced practical work in industry	Alumni survey	Level 3 on survey rubric	Biennially	Biennially
Plan, create and integrate oral and written communication of [mathematical and algorithmic ideas] effectively to audiences having a range of technical understanding.	Direct assessment of student collaborative research projects	Level 3 on project rubric	Annual	Annual
Formulate and *analyze* technical requirements for new or existing projects	Direct assessment of student collaborative research projects	Level 3 on project rubric	Annual	Annual

BS in Chemical Biology

University Undergraduate Goals	Supporting Program Objective/Outcome	Assessment Tools	Metrics/Indicators	Administration Timeline	Loop-Closing Timeline
I. 1. Graduates will demonstrate knowledge, and expertise in applying this knowledge, in their fields.	Administer ETS exit exam to all chemical biology graduates. Departmental review of exit exam results. Review how the chem.biology program corresponds to the questions asked on the ETS exit exam.	ETS National Exam	50% of graduates score at or above 75th percentile (two-year running average) Alignment of curriculum with exit exam questions; identification of weak points.	Annually, late spring.	Annual At least once every four years.
I. 2. Graduates will demonstrate effective use of technology and the ability to apply it in their fields.	Course work in: Students must individually and successfully use instrumentation available in the department. BIO 2323, BIO 4813	Direct assessment of student assignments. Course objectives	Faculty judgment 80% "confident" and "very confident" overall of their mastery of the course objectives.	Annual Annual	Annual Annual
II. 1. Graduates will be literate and skilled in written and oral communication.	Students will write a paper as part of BIO 2323. Laboratory reports will be evaluated using rubric, including standards for organization, language, and visual communication (tables and graphs). BIO 1221, 1231, and 4811	Direct assessment of student assignments with rubric Direct assessment of student assignments with rubric WPE	80% "satisfactory" or "superior" performance. 80% "satisfactory" or "superior" performance. Pass the WPE	Annual Annual Annual	Annual Annual Continuous by University

II. 2. Graduates will be aware of the diverse basis of our culture and will demonstrate both breadth and depth in the arts and the humanities.					
II. 3. Graduates will be aware of the foundations and development of American society.					
II. 4. Graduates will demonstrate competence in mathematics and in the use of the scientific method and laboratory technique.					
II. 5. Graduates will demonstrate creativity and critical thinking, as well as analytical and problem solving skills consistent with the technological focus of the University.	Students will analyze and present a paper from the literature to a panel of faculty and students as part of BIO 4813. Selected courses will include laboratory exercises in which students must plan experiments and understand results with minimal assistance. BIO 1221	Direct assessment of student assignments with rubric Direct assessment of student assignments with rubric	80% "satisfactory" or "superior" performance by the senior year. 80% "satisfactory" or "superior" performance.	Annual Annual	Annual Annual

III. 1. Graduates will have had experiences that promote a high level of professionalism and integrity, responsible decision making, confidence in approaching opportunities, and pride in their abilities.	Course objectives will be developed for biology courses. Students in selected courses will be surveyed at the end of the term as to whether these objectives have been met. Exit interview of graduates.	Course objectives Chair evaluation	80% "confident" and "very confident" overall of their mastery of the course objectives. 80% "satisfied" or "very satisfied" with their chemical biology preparation.	Annual Annual	Annual Annual
III. 2. Graduates will have had experiences that promote the understanding of themselves and others, sensitivity to other cultures in the context of globalization, and interpersonal skills.					
III. 3. Graduates will have had experiences that promote the ability to analyze unfamiliar situations, assess risk, and formulate plans of action.					
III. 4. Graduates will have been made aware of the importance of lifelong learning.					
III. 5. Graduates will have had experiences that promote a global and societal perspective.					

IV.1. Graduates will have had defined roles in teamwork experiences in which both process and progress are monitored.	On team laboratory exercises, require recording and reporting each team member's contribution; evaluation includes criteria for effective teamwork. BIO 1221 and 1231 Opportunities to develop leadership skills will be provided in extracurricular professional activities (such as Michigan Biology student section).	Instructor and team –self evaluation	Faculty judgment	Annual	Annual
IV.2. Graduates will have had team experiences in which they focus on a common goal, take responsibility for their own contributions as well as for the team's product, and evaluate one another's contribution to the team.	On team laboratory exercises, require recording and reporting each team member's contribution; evaluation includes criteria for effective teamwork. BIO 1221 and 1231	Instructor and team –self evaluation	Faculty judgment	Annual	Annual
IV.3. Graduates will have had team experiences in which they practice making decisions, reaching consensus, and resolving conflicts.	On team laboratory exercises, require recording and reporting each team member's contribution; evaluation includes criteria for effective teamwork. BIO 1221 and 1231	Instructor and team –self evaluation	Faculty judgment	Annual	Annual

V. 1. Graduates will have had opportunities to learn the value of contributing to their community and to society.					
V. 2. Graduates will have had opportunities to develop personal values as the foundation of integrity and professional ethics.	Best practices course on Ethics in Biomed. program	Course objectives	80% “confident” and “very confident” overall of their mastery of the course objectives.	Annual	Annual

BS in Chemistry

University Undergraduate Goals	Supporting Program Objective/Outcome	Assessment Tools	Metrics/Indicators	Administration Timeline	Loop-Closing Timeline
I. 1. Graduates will demonstrate knowledge, and expertise in applying this knowledge, in their fields.	Administer ETS exit exam to all Chemistry graduates.	ETS National Exam	60% of graduates score at or above 75th percentile (two-year running average)	Annually, late spring.	Annual
	Departmental review of exit exam results. Review how the Chemistry program corresponds to the questions asked on the ETS exit exam		Alignment of curriculum with exit exam questions; identification of weak points		At least once every four years.
	Mid-course departmental review of students during Junior year	Direct assessment of student assignments.	Students making satisfactory progress: intervention where appropriate	Annual	
I. 2. Graduates will demonstrate effective use of technology and the ability to apply it in their fields.	Course work in: CHM4632 – Instrumental Analysis CHM4542 – Physical Analytical Lab II CHM3463 – Advanced Synthesis	Direct assessment of student assignments.	Faculty judgment The designation of Qualified/Not Qualified will be given. 80% will receive a "Qualified" designation	Annual	Annual
	Students must individually and successfully use instrumentation and chemical literature available in the department. Includes analysis of unknown substances, student-synthesized materials, or natural samples.	Course objectives	80% "confident" and "very confident" overall of their mastery of the course objectives.	Annual	Annual

II. 1. Graduates will be literate and skilled in written and oral communication.	Students will write a paper as part of CHM3452 (Intermediate Inorganic Chemistry), CHM3383 (Environmental Chemistry), and CHM3623 (Polymer Chemistry). Laboratory reports will be evaluated using rubric, including standards for organization, language, and visual communication (tables and graphs).	Direct assessment of student assignments with rubric Direct assessment of student assignments with rubric WPE	80% "satisfactory" or "superior" performance. 80% "satisfactory" or "superior" performance. Pass the WPE	Annual Annual Annual	Annual Annual Continuous by University
II. 2. Graduates will be aware of the diverse basis of our culture and will demonstrate both breadth and depth in the arts and the humanities.					
II. 3. Graduates will be aware of the foundations and development of American society.					
II. 4. Graduates will demonstrate competence in mathematics and in the use of the scientific method and laboratory technique.					

II. 5. Graduates will demonstrate creativity and critical thinking, as well as analytical and problem solving skills consistent with the technological focus of the University.	Students will analyze and present a paper from the chemical literature to a panel of faculty and students as part of CHM4643 (Advanced Inorganic), and CHM4723 (Advanced Organic).	Direct assessment of student assignments with rubric	80% "satisfactory" or "superior" performance by the senior year.	Annual	Annual
	Selected courses will include laboratory exercises in which students must plan experiments and understand results with minimal assistance. Courses may include: CHM 4632 - Instrumental Analysis and/or CHM 3463 - Advanced Synthesis	Direct assessment of student assignments with rubric	80% "satisfactory" or "superior" performance.	Annual	Annual
III. 1. Graduates will have had experiences that promote a high level of professionalism and integrity, responsible decision making, confidence in approaching opportunities, and pride in their abilities.	Course objectives will be developed for all chemistry courses above CHM1213. Students in selected courses will be surveyed at the end of the term as to whether these objectives have been met.	Course objectives	80% "confident" and "very confident" overall of their mastery of the course objectives.	Annual	Annual
	Exit interview of graduates.	Chair evaluation	80% "satisfied" or "very satisfied" with their chemistry preparation.	Annual	Annual
III. 2. Graduates will have had experiences that promote the understanding of themselves and others, sensitivity to other cultures in the context of globalization, and interpersonal skills.					
III. 3. Graduates will have had experiences that promote the ability to analyze unfamiliar situations, assess risk, and formulate plans of action.					

III.4. Graduates will have been made aware of the importance of lifelong learning.					
III.5. Graduates will have had experiences that promote a global and societal perspective.					
IV.1. Graduates will have had defined roles in teamwork experiences in which both process and progress are monitored.	On team laboratory exercises, require recording and reporting each team member's contribution; evaluation includes criteria for effective teamwork. Courses may include: CHM4632 - Instrumental Analysis and/or CHM4542 - Physical Analytical Lab II CHM 3463 - Advanced Synthesis Opportunities to develop leadership skills will be provided in extracurricular professional activities (ACS Student Section).	Instructor and team –self evaluation	Faculty judgment	Annual	Annual
IV.2. Graduates will have had team experiences in which they focus on a common goal, take responsibility for their own contributions as well as for the team's product, and evaluate one another's contribution to the team.	On team laboratory exercises, require recording and reporting each team member's contribution; evaluation includes criteria for effective teamwork. Courses may include: CHM4632 - Instrumental Analysis and/or CHM4542 - Physical Analytical Lab II CHM 3463 - Advanced Synthesis	Instructor and team –self evaluation	Faculty judgment	Annual	Annual

IV.3. Graduates will have had team experiences in which they practice making decisions, reaching consensus, and resolving conflicts.	On team laboratory exercises, require recording and reporting each team member's contribution; evaluation includes criteria for effective teamwork. Courses may include: CHM4632 - Instrumental Analysis and/or CHM4542 - Physical Analytical Lab II CHM 3463 - Advanced Synthesis	Instructor and team –self evaluation	Faculty judgment	Annual	Annual
V. 1. Graduates will have had opportunities to learn the value of contributing to their community and to society.					
V. 2. Graduates will have had opportunities to develop personal values as the foundation of integrity and professional ethics.	PSC 3001 course	Course objectives	80% "confident" and "very confident" overall of their mastery of the course objectives.	Annual	Annual

BS in Environmental Chemistry

University Undergraduate Goals	Supporting Program Objective/Outcome	Assessment Tools	Metrics/Indicators	Administration Timeline	Loop-Closing Timeline
I. 1. Graduates will demonstrate knowledge, and expertise in applying this knowledge, in their fields.	Administer ETS exit exam to all Chemistry graduates.	ETS National Exam	60% of graduates score at or above 75th percentile (two-year running average)	Annually, late spring.	Annual
	Departmental review of exit exam results. Review how the Environmental Chemistry program corresponds to the questions asked on the ETS exit exam		Alignment of curriculum with exit exam questions; identification of weak points		At least once every four years.
	Mid-course departmental review of students during Junior year	Direct assessment of student assignments.	Students making satisfactory progress: intervention where appropriate	Annual	
I. 2. Graduates will demonstrate effective use of technology and the ability to apply it in their fields.	Course work in: CHM4632 – Instrumental Analysis CHM4542 – Physical Analytical Lab II CHM 3392 – Environmental Sampling CHM3463 – Advanced Synthesis	Direct assessment of student assignments.	Faculty judgment The designation of Qualified/Not Qualified will be given. 80% will receive a "Qualified" designation	Annual	Annual
	Students must individually and successfully use instrumentation and chemical literature available in the department. Includes analysis of unknown substances, student-synthesized materials, or natural samples.	Course objectives	80% "confident" and "very confident" overall of their mastery of the course objectives.	Annual	Annual

II. 1. Graduates will be literate and skilled in written and oral communication.	Students will write a paper as part of CHM3452 (Intermediate Inorganic Chemistry) and CHM3383 (Environmental Chemistry) Laboratory reports will be evaluated using rubric, including standards for organization, language, and visual communication (tables and graphs).	Direct assessment of student assignments with rubric Direct assessment of student assignments with rubric WPE	80% "satisfactory" or "superior" performance. 80% "satisfactory" or "superior" performance. Pass the WPE	Annual Annual Annual	Annual Annual Continuous by University
II. 2. Graduates will be aware of the diverse basis of our culture and will demonstrate both breadth and depth in the arts and the humanities.					
II. 3. Graduates will be aware of the foundations and development of American society.					
II. 4. Graduates will demonstrate competence in mathematics and in the use of the scientific method and laboratory technique.					
II. 5. Graduates will demonstrate creativity and critical thinking, as well as analytical and problem solving skills consistent with the technological focus of the University.	Selected courses will include laboratory exercises in which students must plan experiments and understand results with minimal assistance. Courses may include: CHM 4632 - Instrumental Analysis and/or CHM 3463 - Advanced Synthesis	Direct assessment of student assignments with rubric	80% "satisfactory" or "superior" performance by the senior year.	Annual	Annual

III. 1. Graduates will have had experiences that promote a high level of professionalism and integrity, responsible decision making, confidence in approaching opportunities, and pride in their abilities.	Course objectives will be developed for all chemistry courses above CHM1213. Students in selected courses will be surveyed at the end of the term as to whether these objectives have been met. Exit interview of graduates.	Course objectives Chair evaluation	80% "confident" and "very confident" overall of their mastery of the course objectives. 80% "satisfied" or "very satisfied" with their chemistry preparation.	Annual Annual	Annual Annual
III. 2. Graduates will have had experiences that promote the understanding of themselves and others, sensitivity to other cultures in the context of globalization, and interpersonal skills.					
III. 3. Graduates will have had experiences that promote the ability to analyze unfamiliar situations, assess risk, and formulate plans of action.					
III. 4. Graduates will have been made aware of the importance of lifelong learning.					
III. 5. Graduates will have had experiences that promote a global and societal perspective.					

IV.1. Graduates will have had defined roles in teamwork experiences in which both process and progress are monitored.	On team laboratory exercises, require recording and reporting each team member's contribution; evaluation includes criteria for effective teamwork. Courses may include: CHM4632 - Instrumental Analysis and/or CHM4542 - Physical Analytical Lab II CHM 3463 - Advanced Synthesis Opportunities to develop leadership skills will be provided extracurricular professional activities (ACS Student Section).	Instructor and team –self evaluation	Faculty judgement	Annual	Annual
IV.2. Graduates will have had team experiences in which they focus on a common goal, take responsibility for their own contributions as well as for the team's product, and evaluate one another's contribution to the team.	On team laboratory exercises, require recording and reporting each team member's contribution; evaluation includes criteria for effective teamwork. Courses may include: CHM4632 - Instrumental Analysis and/or CHM4542 - Physical Analytical Lab II CHM 3463 - Advanced Synthesis	Instructor and team –self evaluation	Faculty judgement	Annual	Annual
IV.3. Graduates will have had team experiences in which they practice making decisions, reaching consensus, and resolving conflicts.	On team laboratory exercises, require recording and reporting each team member's contribution; evaluation includes criteria for effective teamwork. Courses may include: CHM4632 - Instrumental Analysis and/or CHM4542 - Physical Analytical Lab II CHM 3463 - Advanced Synthesis	Instructor and team –self evaluation	Faculty judgement	Annual	Annual

V. 1. Graduates will have had opportunities to learn the value of contributing to their community and to society.					
V. 2. Graduates will have had opportunities to develop personal values as the foundation of integrity and professional ethics.	PSC 3001 course	Course objectives	80% “confident” and “very confident” overall of their mastery of the course objectives.	Annual	Annual

BS in Molecular and Cellular Biology

University Undergraduate Goals	Supporting Program Objective/Outcome	Assessment Tools	Metrics/Indicators	Administration Timeline	Loop-Closing Timeline
I. 1. Graduates will demonstrate knowledge, and expertise in applying this knowledge, in their fields.	Administer ETS exit exam to all Molecular & Cell Biology graduates. Departmental review of exit exam results. Review how the Molecular & Cell Biology program corresponds to the questions asked on the ETS exit exam	ETS National Exam	50% of graduates score at or above 75th percentile (two-year running average) Alignment of curriculum with exit exam questions; identification of weak points.	Annually, late spring.	Annual At least once every four years.
I. 2. Graduates will demonstrate effective use of technology and the ability to apply it in their fields.	Course work in: Students must individually and successfully use instrumentation available in the department. BIO 2323, BIO 4813	Direct assessment of student assignments. Course objectives	Faculty judgment 80% "confident" and "very confident" overall of their mastery of the course objectives.	Annual Annual	Annual Annual
II. 1. Graduates will be literate and skilled in written and oral communication.	Students will write a paper as part of BIO 2323. Laboratory reports will be evaluated using rubric, including standards for organization, language, and visual communication (tables and graphs). BIO 1221, 1231, and 4811	Direct assessment of student assignments with rubric Direct assessment of student assignments with rubric WPE	80% "satisfactory" or "superior" performance. 80% "satisfactory" or "superior" performance. Pass the WPE	Annual Annual Annual	Annual Annual Continuous by University
II. 2. Graduates will be aware of the diverse basis of our culture and will demonstrate both breadth and depth in the arts and the humanities.					

II. 3. Graduates will be aware of the foundations and development of American society.					
II. 4. Graduates will demonstrate competence in mathematics and in the use of the scientific method and laboratory technique.					
II. 5. Graduates will demonstrate creativity and critical thinking, as well as analytical and problem solving skills consistent with the technological focus of the University.	Students will analyze and present a paper from the literature to a panel of faculty and students as part of BIO 4813. Selected courses will include laboratory exercises in which students must plan experiments and understand results with minimal assistance. BIO 1221 and BIO 4813	Direct assessment of student assignments with rubric Direct assessment of student assignments with rubric	80% "satisfactory" or "superior" performance by the senior year. 80% "satisfactory" or "superior" performance.	Annual Annual	Annual Annual
III. 1. Graduates will have had experiences that promote a high level of professionalism and integrity, responsible decision making, confidence in approaching opportunities, and pride in their abilities.	Course objectives will be developed for biology courses. Students in selected courses will be surveyed at the end of the term as to whether these objectives have been met. Exit interview of graduates.	Course objectives Chair evaluation	80% "confident" and "very confident" overall of their mastery of the course objectives. 80% "satisfied" or "very satisfied" with their chemical biology preparation.	Annual Annual	Annual Annual

III.2. Graduates will have had experiences that promote the understanding of themselves and others, sensitivity to other cultures in the context of globalization, and interpersonal skills.					
III.3. Graduates will have had experiences that promote the ability to analyze unfamiliar situations, assess risk, and formulate plans of action.					
III.4. Graduates will have been made aware of the importance of lifelong learning.					
III.5. Graduates will have had experiences that promote a global and societal perspective.					
IV.1. Graduates will have had defined roles in teamwork experiences in which both process and progress are monitored.	On team laboratory exercises, require recording and reporting each team member's contribution; evaluation includes criteria for effective teamwork. BIO 1221 and 1231 Opportunities to develop leadership skills will be provided in extracurricular professional activities (such as Michigan Biology student section).	Instructor and team –self evaluation	Faculty judgment	Annual	Annual

IV.2. Graduates will have had team experiences in which they focus on a common goal, take responsibility for their own contributions as well as for the team's product, and evaluate one another's contribution to the team.	On team laboratory exercises, require recording and reporting each team member's contribution; evaluation includes criteria for effective teamwork. BIO 1221 and 1231	Instructor and team –self evaluation	Faculty judgment	Annual	Annual
IV.3. Graduates will have had team experiences in which they practice making decisions, reaching consensus, and resolving conflicts.	On team laboratory exercises, require recording and reporting each team member's contribution; evaluation includes criteria for effective teamwork. BIO 1221 and 1231	Instructor and team –self evaluation	Faculty judgment	Annual	Annual
V. 1. Graduates will have had opportunities to learn the value of contributing to their community and to society.					
V. 2. Graduates will have had opportunities to develop personal values as the foundation of integrity and professional ethics.	Best practices course on Ethics in Biomed. program	Course objectives	80% "confident" and "very confident" overall of their mastery of the course objectives.	Annual	Annual

BS in Physics

University Undergraduate Goals	Supporting Program Objective/Outcome	Assessment Tools	Metrics/Indicators	Administration Timeline	Loop-Closing Timeline
I. 1. Graduates will demonstrate knowledge, and expertise in applying this knowledge, in their fields.	Administer ETS exit exam to all physics graduates. Departmental review of exit exam results. Review how the Physics program corresponds to the questions asked on the ETS exit exam	ETS National Exam	60% of graduates score at or above 75th percentile (two-year running average) Alignment of curriculum with exit exam questions; identification of weak points.	Annually, late spring.	Annual At least once every four years.
I. 2. Graduates will demonstrate effective use of technology and the ability to apply it in their fields.	Take the Physics Lab courses: - PHY3661 - Contemporary Physics Lab - PHY4781 – Optics, Lasers & Micro Lab Twice a semester , a peer assessment will be performed (with Instructor input). The subject of the assessment will be the use of instrumentation in these labs.	Direct assessment of student assignments.	Faculty judgment The designation of Qualified/Not Qualified will be given. 80% will receive a "Qualified" designation	Every semester	Annual
II. 1. Graduates will be literate and skilled in written and oral communication.	The student who will take the Physics Project courses PHY4912 & PHY4922 will write reports and make oral presentations; evaluation by rubric. Physics 3653 will give a book or literature report.	Direct assessment of student assignments with rubric	80% of the students will earn a B+ or better for the presentation of **written reports** for each course 80% of the students will earn a B+ or better for presentations of **oral reports** for each course.	Annual Annual	Annual Annual
		WPE	Pass the WPE	Annual	Continuous by University

II. 2. Graduates will be aware of the diverse basis of our culture and will demonstrate both breadth and depth in the arts and the humanities.					
II. 3. Graduates will be aware of the foundations and development of American society.					
II. 4. Graduates will demonstrate competence in mathematics and in the use of the scientific method and laboratory technique.					
II. 5. Graduates will demonstrate creativity and critical thinking, as well as analytical and problem solving skills consistent with the technological focus of the University.	All Physics Lab reports in the PHY3661 and PHY4781 courses will require an analysis section where the student are expected to due a thorough analysis includes data analysis The PHY3661 and PHY4781 courses will include laboratory exercises for which no instructions will be provided. Students must plan experiments and understand results.	Direct assessment of student assignments with rubric Direct assessment of student assignments with rubric	Give a separate grade for the analysis. Rubrics, based on NIST standards, will be used. 80% of the Lab reports will show a B+ or better on the analysis. 80% of the students will earn a B+ or better for the lab reports where no instructions will be given.	Annual Annual	Annual Annual

III. 1. Graduates will have had experiences that promote a high level of professionalism and integrity, responsible decision making, confidence in approaching opportunities, and pride in their abilities.	Course objectives will be developed for all Physics courses. Students in selected courses will be surveyed at the end of the term as to whether these objectives have been met. Exit interview of graduates.	Course objectives Chair evaluation	80% "somewhat confident" and "very confident" overall of their mastery of the course objectives. 80% "satisfied" or "very satisfied" with their Physics preparation.	Annual Annual	Annual Annual
III. 2. Graduates will have had experiences that promote the understanding of themselves and others, sensitivity to other cultures in the context of globalization, and interpersonal skills.					
III. 3. Graduates will have had experiences that promote the ability to analyze unfamiliar situations, assess risk, and formulate plans of action.					
III. 4. Graduates will have been made aware of the importance of lifelong learning.					
III. 5. Graduates will have had experiences that promote a global and societal perspective.					

IV.1. Graduates will have had defined roles in teamwork experiences in which both process and progress are monitored.	On team laboratory exercises, require recording and reporting each team member's contribution; evaluation includes criteria for effective teamwork. Some sections of PHY2413/2423 will implement team concepts into course work. Identify team member roles in team exercises. Opportunities to develop leadership skills will be provided in extracurricular activities in student organizations(participation in SPS).	Instructor and team –self evaluation	Faculty judgment Team process check survey will be used that identify the student roles in the lab. These check lists must be included in the lab reports. 80% of responses with always satisfied or frequently satisfied to the team process survey which will also include pier evaluation to assess team member contributions.	Every semester	Annual
IV.2. Graduates will have had team experiences in which they focus on a common goal, take responsibility for their own contributions as well as for the team's product, and evaluate one another's contribution to the team.	On team laboratory exercises, require recording and reporting each team member's contribution; evaluation includes criteria for effective teamwork.	Instructor and team –self evaluation	Faculty judgment	Annual	Annual
IV.3. Graduates will have had team experiences in which they practice making decisions, reaching consensus, and resolving conflicts.	On team laboratory exercises, require recording and reporting each team member's contribution; evaluation includes criteria for effective teamwork.	Instructor and team –self evaluation	Faculty judgment	Annual	Annual

V. 1. Graduates will have had opportunities to learn the value of contributing to their community and to society.					
V. 2. Graduates will have had opportunities to develop personal values as the foundation of integrity and professional ethics.	PSC 3001	Course objectives	80% “confident” and “very confident” overall of their mastery of the course objectives.	Annual	Annual

College of Engineering

ABET Undergraduate Assessment Plan

Goals (University)	***Supporting Program Objective/Outcome**	**Assessment Tools**	**Metrics/Indicators**	**Admin Timeline**	**Loop/Close Timeline**
I. 1. Graduates will demonstrate knowledge and expertise in applying this knowledge , in their fields	A & C	Assignments, examinations, project work, documentation, class interaction	Means and std. deviations for quizzes and tests	Every semester	Annual
1. 2. Graduates will demonstrate effective use of technology and the ability to apply is in their fields	B & D	Senior project demonstrable product	Assessment of effectiveness of product function	Every semester	Annual
II. 1. Graduates will be literate and skilled written and oral communication	G	COM3000, Assignments, papers	Pass the Written Prof. Exam	Every semester	Annual
II. 2. Graduates will be aware of the diverse basis of our culture and will demonstrate both breadth and depth in the arts and the humanities	I & J	Assignments, class interaction	Assessment of course material	Every semester	Annual
II. 3. Graduates will be aware of the foundations and development of American society	I	LTU core curriculum	Assessment of course material	Every semester	Annual
II.4. Graduates will demonstrate competence in mathematics in the use of the scientific method and laboratory technique	B	Senior project demonstrable product	Quality of analysis of product development	Every semester	Annual
II.5. Graduates will demonstrate creativity and critical thinking, as well as analytical and problem solving skills constituent with the technological focus of the University.	C & F	Senior project demonstrable product	Assess Innovativeness of product	Every semester	Annual

III. 1. Graduates will have had experiences that promote a high level of professionalism and integrity, responsibility, decision making, confidence in approaching opportunities	I	Senior project demonstrable product	Advisory Board evaluation of product presentation and demonstration	Every semester	Annual
III. 2. Graduates will have had experiences that promote the understanding of themselves and others, sensitivity to other cultures in the context of globalization, and interpersonal skills.	J	Direct assessment of student in classroom settings	Observed student behavior in classroom and campus settings	Every semester	Annual
III. 3. Graduates will have had experiences that promote the ability to analyze unfamiliar situations, assess risk, and formulate plans of action.	F	Senior project demonstrable product	Assess student behavior in class and evaluate product plan of action	Every semester	Annual
III. 4. Graduates will have been made aware of the importance of lifelong learning.	H	Student participation in learning outside of classroom	Feedback from alumni surveys	Every semester	Annual
III. 5. Graduates will have had experiences that promote a global and societal perspective .	J	LTU core curriculum	Feedback from alumni surveys	Every semester	Annual
IV. 1. Graduates will have had defined roles in teamwork experiences in which both process and progress are monitored.	E	Senior project demonstrable product	Instructor and peer evaluation of student participation in team effort	Every semester	Annual
IV. 2. Graduates will have had team experiences in which they focus on a common goal, take responsibility for their own contributions as well as the team's product, and evaluate one another's contribution to the team.	E	Senior project demonstrable product	Instructor and peer evaluation of student participation in team effort	Every semester	Annual

IV. 3. Graduates will have had team experiences in which they practice making decisions, reaching consensus, and resolving conflicts.	E	Senior project demonstrable product	Instructor and peer evaluation of student actions in team	Every semester	Annual
V. 1. Graduates will have had opportunities to learn the value of contributing to their community and to society.	I	Student exposed to many courses and classroom situations	Feedback from alumni surveys	Every semester	Annual
V. 2. Graduates will have had opportunities to develop personal values as the foundation of integrity and professional ethics.	I	Student exposed to many courses and classroom situations	Observed student behavior with other students	Every semester	Annual

* See Program Objectives/Outcomes below.

Program Objectives/Outcomes

A an appropriate mastery of the knowledge, techniques, skills, and modern tools of their disciplines
B an ability to apply current knowledge and adapt to emerging applications of mathematics, science, engineering, and technology
C an ability to conduct, analyze, and interpret experiments, and apply experimental results to improve processes
D an ability to apply creativity in the design of systems, components, or processes appropriate to program educational objectives
E an ability to function effectively on teams
F an ability to identify, analyze and solve technical problems
G an ability to communicate effectively
H a recognition of the need for, and an ability to engage in lifelong learning
I an ability to understand professional, ethical and social responsibilities
J a respect for diversity and knowledge of contemporary professional, societal and global issues
K a commitment to quality, timeliness, and continuous improvement

BS in Civil Engineering

Goals (University)	Supporting Program Objective/Outcome	Assessment Tools	Metrics/Indicators	Administration Timeline	Loop-Closing Timeline
I. 1. Graduates will demonstrate knowledge, and expertise in applying this knowledge, in their fields.	Outcome #13 Project Management: ***Analyze*** a proposed project and ***formulate*** documents for incorporation into the project plan. Outcome #14 Breadth in CE Areas: ***Analyze*** and solve well-defined engineering problems in at least four technical areas appropriate to civil engineering.	Direct assessment of student assignments. Direct assessment of student assignments. Fundamentals of Engineering Exam	Level 3 on direct assessment rubric. Level 3 on direct assessment rubric. Above national average for Carnegie peer institutions.	Every semester. Every semester Every semester	Annual Annual Every two years.
I. 2. Graduates will demonstrate effective use of technology and the ability to apply it in their fields.	Outcome #15 Technical Specialization: ***Apply*** specialized tools or technologies to solve problems in traditional or emerging specialized technical areas of civil engineering.	Direct assessment of student assignments. Advisory Board evaluation of senior projects.	Level 3 on direct assessment rubric. Level 3 on technical presentation rubric.	Every semester Spring semester	Annual Annual
II. 1. Graduates will be literate and skilled in written and oral communication.	Outcome #16 Communication: ***Plan, compose,*** and ***integrate*** the verbal, written, virtual, and graphical communication of a project to technical and non-technical audiences.	Advisory Board & faculty evaluation of senior project presentations. WPE	Level 3 on presentation rubric Pass the WPE	Spring semester Every semester	Annual Continuous by University
II. 2. Graduates will be aware of the diverse basis of our culture and will demonstrate both breadth and depth in the arts and the humanities.	Outcome #3 Humanities: ***Demonstrate*** the importance of the humanities in the professional practice of engineering.				
II. 3. Graduates will be aware of the foundations and development of American society.	Outcome #4 Social Sciences: ***Demonstrate*** the incorporation of social sciences knowledge into the professional practice of engineering.				

II. 4. Graduates will demonstrate competence in mathematics and in the use of the scientific method and laboratory technique.	Outcome #1 Mathematics: ***Solve*** problems in mathematics through differential equations and ***apply*** this knowledge to the solution of engineering problems.				
II. 5. Graduates will demonstrate creativity and critical thinking, as well as analytical and problem solving skills consistent with the technological focus of the University.	Outcome #8 Problem Recognition and Solving: ***Develop*** problem statements and ***solve*** both well-defined and open-ended civil engineering problems by selecting and applying appropriate techniques and tools.	Direct assessment of student assignments.	Level 4 on direct assessment rubric.	Every semester.	Annual
III. 1. Graduates will have had experiences that promote a high level of professionalism and integrity, responsible decision making, confidence in approaching opportunities, and pride in their abilities.	Outcome #24 Professional and Ethical Responsibility: ***Explain*** the many aspects of professionalism and what it means to be a member of the civil engineering profession; ***analyze*** a situation involving multiple conflicting professional and ethical interests to determine an appropriate course of action.	Direct assessment of student assignments. Fundamentals of Engineering Exam	Level 3 on direct assessment rubric. Above national average for Carnegie peer institutions.	Every semester. Every semester	Annual Every two years.
III. 2. Graduates will have had experiences that promote the understanding of themselves and others, sensitivity to other cultures in the context of globalization, and interpersonal skills.					

III.3. Graduates will have had experiences that promote the ability to analyze unfamiliar situations, assess risk, and formulate plans of action.	Outcome #8 Problem Recognition and Solving: ***Develop*** problem statements and ***solve*** both well-defined and open-ended civil engineering problems by selecting and applying appropriate techniques and tools. Outcome #12 Risk and Uncertainty: ***Apply*** principles of probability and statistics and ***solve*** problems containing uncertainty	Direct assessment of student assignments. Direct assessment of student assignments (CE and MCS).	Level 4 on direct assessment rubric	Every semester	Annual
III.4. Graduates will have been made aware of the importance of lifelong learning.	Outcome #23 Lifelong Learning: ***Demonstrate*** the ability for self-directed learning and ***identify*** additional knowledge, skills and attitudes appropriate for continued professional practice.	Direct assessment of student assignments.	Level 4 on direct assessment rubric	Every semester	Annual
III.5. Graduates will have had experiences that promote a global and societal perspective.	Outcome #19 Globalization: **Explain** global issues related to professional practice, infrastructure, environment and service populations as such issues arise across cultures and countries.				
IV.1. Graduates will have had defined roles in teamwork experiences in which both process and progress are monitored.	Outcome #21 Teamwork: ***Function*** effectively as a member of an intra-disciplinary team and ***evaluate*** the performance of the team and individual team members	Peer evaluation rubric in senior design. Faculty and Professional rubric evaluation in senior design.	Level 3 on direct assessment rubric Level 3 on direct assessment rubric.	Spring Semester Spring Semester	Annual Annual
IV.2. Graduates will have had team experiences in which they focus on a common goal, take responsibility for their own contributions as well as for the team's product, and evaluate one another's contribution to the team.	Outcome #21 Teamwork: ***Function*** effectively as a member of an intra-disciplinary team and ***evaluate*** the performance of the team and individual team members	Peer evaluation rubric in senior design. Faculty and Professional rubric evaluation in senior design.	Level 3 on rubric Level 3 on rubric.	Spring Semester Spring Semester	Annual Annual

IV.3. Graduates will have had team experiences in which they practice making decisions, reaching consensus, and resolving conflicts.	Outcome #21 Teamwork: ***Function*** effectively as a member of an intra-disciplinary team and ***evaluate*** the performance of the team and individual team members	Peer evaluation rubric in senior design. Faculty and Professional rubric evaluation in senior design.	Level 3 on rubric Level 3 on rubric.	Spring Semester Spring Semester	Annual Annual
V. 1. Graduates will have had opportunities to learn the value of contributing to their community and to society.					
V. 2. Graduates will have had opportunities to develop personal values as the foundation of integrity and professional ethics.	Outcome #24 Professional and Ethical Responsibility: ***Explain*** the many aspects of professionalism and what it means to be a member of the civil engineering profession; ***analyze*** a situation involving multiple conflicting professional and ethical interests to determine an appropriate course of action.	Direct assessment of student assignments. Fundamentals of Engineering Exam	Level 3 on direct assessment rubric. Above national average for Carnegie peer institutions.	Every semester. Every semester	Annual Every two years.

BS in Electrical Engineering

Goals (University)	Supporting Program Objective/Outcome	Assessment Tools	Metrics/Indicators	Administration Timeline	Loop-Closing Timeline	Educational Objectives: (PEO)
I. 1. Graduates will demonstrate knowledge, and expertise in applying this knowledge, in their fields.	PEOU A B C E K	Direct Assessment using Rubrics	Published Rubrics	Each semester	Each year	To graduate electrical engineering students who 1. possess the problem-solving and critical judgment skills required of competent citizens in an increasingly technological society; 2. are able to undertake entry-level engineering projects in local industry; 3. are capable of growing in competence and responsibility; 4. are prepared to undertake graduate study.
I. 2. Graduates will demonstrate effective use of technology and the ability to apply it in their fields.	PEOU A K L M PEO 1, 2. 3	Direct Assessment using Rubrics	Published Rubrics	Each semester	Each year	
II. 1. Graduates will be literate and skilled in written and oral communication.	PEOU G	Senior project direct assessment	Published rubrics	Each semester	Each year	**Educational Outcomes: (PEOU)** 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 to analyze and interpret data c) an ability to design an electrical system, component, or process to meet desired needs within

						realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability d) an ability to function on multidisciplinary teams e) an ability to identify, formulate, and solve electrical engineering problems f) an understanding of professional and ethical responsibility g) an ability to communicate effectively h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context i) a recognition of the need for, and an ability to engage in life-long learning j) a knowledge of contemporary issues

						k) an ability to use the techniques, skills, and modern engineering tools necessary for electrical engineering practice l) an ability to plan, design, simulate, fabricate, construct, and test circuit hardware **Source for the obve objectives and outcomes:** **http://www.ltu.edu/engineering/electricalandcomputer/ece_objectives.asp**
II. 2. Graduates will be aware of the diverse basis of our culture and will demonstrate both breadth and depth in the arts and the humanities.						
II. 3. Graduates will be aware of the foundations and development of American society.						
II. 4. Graduates will demonstrate competence in mathematics and in the use of the scientific method and laboratory technique.	PEO #1 PEOU A L M	Direct Assessment using Rubrics	Published Rubrics	Each semester	Each year	

II. 5. Graduates will demonstrate creativity and critical thinking, as well as analytical and problem solving skills consistent with the technological focus of the University.	PEO #1 PEOU C, H, J	Direct Assessment using Rubrics	Published Rubrics	Each semester	Each year	
III. 1. Graduates will have had experiences that promote a high level of professionalism and integrity, responsible decision making, confidence in approaching opportunities, and pride in their abilities.	PEO #1, #4 PEOU I, K	Senior project direct assessment	Published rubrics	Each semester	Each year	
III. 2. Graduates will have had experiences that promote the understanding of themselves and others, sensitivity to other cultures in the context of globalization, and interpersonal skills.	PEO 1 PEOU C and H and I	Senior project and laboratory direct assessment	Published rubrics	Each semester	Each year	
III. 3. Graduates will have had experiences that promote the ability to analyze unfamiliar situations, assess risk, and formulate plans of action.	PEO 1,2 PEOU C, E, M and L	Direct Assessment using Rubrics	Published Rubrics	Each semester	Each year	
III. 4. Graduates will have been made aware of the importance of lifelong learning.	PEO #1, #3, #4 PEOU I	Special lifelong learning presentation with department mandated reinforcement	Published special assessment tool with associated rubric	Each semester	Each year	

III.5. Graduates will have had experiences that promote a global and societal perspective.						
IV.1. Graduates will have had defined roles in teamwork experiences in which both process and progress are monitored.	PEO #1,2 PEOU D	Senior project direct assessment	Published rubrics	Each semester	Each year	
IV.2. Graduates will have had team experiences in which they focus on a common goal, take responsibility for their own contributions as well as for the team's product, and evaluate one another's contribution to the team.	PEO #1,2 PEOU D	Senior project direct assessment	Published rubrics	Each semester	Each year	
IV.3. Graduates will have had team experiences in which they practice making decisions, reaching consensus, and resolving conflicts.	PEO #1 PEOU D	Senior project direct assessment	Published rubrics	Each semester	Each year	
V. 1. Graduates will have had opportunities to learn the value of contributing to their community and to society.						
V. 2. Graduates will have had opportunities to develop personal values as the foundation of integrity and professional ethics.	PEO #1, #2 PEOU F	Special ethics learning presentation with department mandated reinforcement	Published special assessment tool with associated rubric	Each semester	Each year	

BS in Mechanical Engineering

Goals (University)	Assessments	Indicators	Administration Timeline	Loop-Closing Timeline
I. 1. Graduates will demonstrate knowledge, and expertise in applying this knowledge, in their fields.	FE style questions on final exams in EME3003, EME3034, EME3043 Quiz on design technique in EGE1012, EME3011, EME4212, EME4222 Graded problems based on rubric in EGE2013, EME3013, EME4003, EGE3003, EME3024, EME4013	70% of students receive a score of 60% or higher 70% of students receive a score Of 50%, 70%, 80%, and 87%, respectively, or higher 50% of students receive a score of 70% or higher	Yearly (fall or spring)	Departmental review every two years
I. 2. Graduates will demonstrate effective use of technology and the ability to apply it in their fields.	Evaluation of coursework in EGE1012, EGE1101, EGE1201, EGE1301, EME2012, EME3033	TBD	Yearly (fall or spring)	Departmental review every two years
II. 1. Graduates will be literate and skilled in written and oral communication.	University Writing Proficiency Exam (WPE) University Oral Communications Program Evaluation of oral presentation in EME4412, EME4212, EME4222	All graduates must pass WPE N/A TBD	Continuous N/A Yearly (fall or spring)	None N/A Departmental review every two years
II. 2. Graduates will be aware of the diverse basis of our culture and will demonstrate both breadth and depth in the arts and the humanities.	Senior Humanities Elective	N/A	N/A	N/A
II. 3. Graduates will be aware of the foundations and development of American society.	Track courses in Humanities	N/A	N/A	N/A

II. 4. Graduates will demonstrate competence in mathematics and in the use of the scientific method and laboratory technique.	FE style questions on final exams in EME3003, EME3034, EME3043 Exam questions on laboratory technique in EME4412	70% of students receive a score of 60% or higher 70% of students receive a score of 60% or higher	Yearly (fall or spring) Yearly (fall or spring)	Departmental review every two years
II. 5. Graduates will demonstrate creativity and critical thinking, as well as analytical and problem solving skills consistent with the technological focus of the University.	ACT/CAAP survey	N/A	N/A	N/A
III. 1. Graduates will have had experiences that promote a high level of professionalism and integrity, responsible decision making, confidence in approaching opportunities, and pride in their abilities.	University Leadership Program	N/A	N/A	N/A
III. 2. Graduates will have had experiences that promote the understanding of themselves and others, sensitivity to other cultures in the context of globalization, and interpersonal skills.	University Leadership Program	N/A	N/A	N/A
III. 3. Graduates will have had experiences that promote the ability to analyze unfamiliar situations, assess risk, and formulate plans of action.	University Leadership Program	N/A	N/A	N/A
III. 4. Graduates will have been made aware of the importance of lifelong learning.	Alumni Survey Seminars (with exit survey) on contemporary engineering topics in EME4212, EME4222	TBD Required attendance and completion of survey	Every spring Yearly (fall or spring)	Departmental review every two years
III. 5. Graduates will have had experiences that promote a global and societal perspective.	University Leadership Program	N/A	N/A	N/A

IV.1. Graduates will have had defined roles in teamwork experiences in which both process and progress are monitored.	University Teamwork Survey Peer evaluations of teamwork projects in EGE1012, EME4412, EME222	N/A 70% of students achieve a score of 68%, 78%, and 89%, respectively, or higher	N/A	N/A Departmental review every two years
IV.2. Graduates will have had team experiences in which they focus on a common goal, take responsibility for their own contributions as well as for the team's product, and evaluate one another's contribution to the team.	University Teamwork Survey Peer evaluations of teamwork projects in EGE1012, EME4412, EME4222	N/A 70% of students achieve a score of 68%, 78%, and 89%, respectively, or higher	N/A	N/A Departmental review every two years
IV.3. Graduates will have had team experiences in which they practice making decisions, reaching consensus, and resolving conflicts.	University Teamwork Survey Peer evaluations of teamwork projects in EGE1012, EME4412, EME4222	N/A 70% of students achieve a score of 68%, 78%, and 89%, respectively, or higher	N/A Yearly (fall or spring)	N/A Departmental review every two years
V. 1. Graduates will have had opportunities to learn the value of contributing to their community and to society.	University Leadership Program Seminars (with exit survey) on contemporary engineering topics in EME4212, EME4222	N/A Required attendance and completion of survey	N/A Yearly (fall or spring)	N/A Departmental review every two years
V. 2. Graduates will have had opportunities to develop personal values as the foundation of integrity and professional ethics.	Ethics quiz (T/F) in EGE1012, EME3011 and EME4222 Ethics quiz (multiple choice) in EGE1012 and EME4222	70% of students achieve a score of 70%, 80%, and 90%, respectively, or higher 50% and 70%, respectively, of students will achieve a score of 50% and 70%, respectively, or higher	Yearly (fall or spring) Yearly (fall or spring)	Departmental review every two years

College of Management

BS in Business Management

University Undergraduate Goals	Assessment Tools	Metrics/Indicators	Administration Timeline	Loop-Closing Timeline
I. 1. Graduates will demonstrate knowledge, and expertise in applying this knowledge, in their fields.	MGT4213 Strategic Management – Capstone Assessment	Item and total scores on assessment rubric	Every time course is taught	Annual
	Direct assessment of student assignments	TBD	Rotating schedule	Every two years
	Course Evaluation Rubric	Points for Applied Knowledge	Rotating schedule	Every two years
I. 2. Graduates will demonstrate effective use of technology and the ability to apply it in their fields.	Direct assessment of student assignments	TBD	Rotating schedule	Every two years
	Internship Supervisory Evaluation	Ratings for relevant items	Every semester	Every two years
II. 1. Graduates will be literate and skilled in written and oral communication.	Direct assessment of student assignments	TBD	Rotating schedule	Every two years
	Course Evaluation Rubric	Points for Written Assignments, Presentations	Rotating schedule	Every two years
	Internship Supervisory Evaluation	Ratings for relevant items	Every semester	Every two years
	Writing Proficiency Exam	Pass WPE	Continuous	Continuous by University
II. 2. Graduates will be aware of the diverse basis of our culture and will demonstrate both breadth and depth in the arts and the humanities.				
II. 3. Graduates will be aware of the foundations and development of American society.				

II. 4. Graduates will demonstrate competence in mathematics and in the use of the scientific method and laboratory technique.				
II. 5. Graduates will demonstrate creativity and critical thinking, as well as analytical and problem solving skills consistent with the technological focus of the University.				
III. 1. Graduates will have had experiences that promote a high level of professionalism and integrity, responsible decision making, confidence in approaching opportunities, and pride in their abilities.				
III. 2. Graduates will have had experiences that promote the understanding of themselves and others, sensitivity to other cultures in the context of globalization, and interpersonal skills.				
III. 3. Graduates will have had experiences that promote the ability to analyze unfamiliar situations, assess risk, and formulate plans of action.				

III.4. Graduates will have been made aware of the importance of lifelong learning.				
III.5. Graduates will have had experiences that promote a global and societal perspective.				
IV.1. Graduates will have had defined roles in teamwork experiences in which both process and progress are monitored.	Direct assessment of student assignments Course Evaluation Rubric Internship Supervisory Evaluation	TBD Points for Teamwork Ratings for relevant items	Rotating schedule Rotating schedule Every semester	Every two years Every two years Every two years
IV.2. Graduates will have had team experiences in which they focus on a common goal, take responsibility for their own contributions as well as for the team's product, and evaluate one another's contribution to the team.	Direct assessment of student assignments Course Evaluation Rubric Internship Supervisory Evaluation	TBD Points for Teamwork Ratings for relevant items	Rotating schedule Rotating schedule Every semester	Every two years Every two years Every two years
IV.3. Graduates will have had team experiences in which they practice making decisions, reaching consensus, and resolving conflicts.				

V. 1. Graduates will have had opportunities to learn the value of contributing to their community and to society.				
V. 2. Graduates will have had opportunities to develop personal values as the foundation of integrity and professional ethics.				

BS in Information Technology

University Undergraduate Goals	Assessment Tools	Metrics/Indicators	Administration Timeline	Loop-Closing Timeline
I. 1. Graduates will demonstrate knowledge, and expertise in applying this knowledge, in their fields.	ICCP Examination – Capstone Assessment	80% will score 50% or higher on ACP certification 50% will score 70% or higher on CCP certification 80% attempting either certification will achieve passing scores	Every semester. Exams given after completion of all core courses	Annual
	Direct assessment of student assignments	TBD	Rotating schedule	Every two years
	Course Evaluation Rubric	Points for Applied Knowledge	Rotating schedule	Every two years
I. 2. Graduates will demonstrate effective use of technology and the ability to apply it in their fields.	ICCP Examination – Capstone Assessment	Scores on Software Engineering and Systems Development sections	Every semester. Exams given after completion of all core courses	Annual
	Direct assessment of student assignments	TBD	Rotating schedule	Every two years
II. 1. Graduates will be literate and skilled in written and oral communication.	Direct assessment of student assignments	TBD	Rotating schedule	Every two years
	Course Evaluation Rubric	Points for Written Assignments, Presentations	Rotating schedule	Every two years
	Internship Supervisory Evaluation	Ratings for relevant items	Every semester	Every two years
	Writing Proficiency Exam	Pass WPE	Continuous	Continuous by University
II. 2. Graduates will be aware of the diverse basis of our culture and will demonstrate both breadth and depth in the arts and the humanities.				

II. 3. Graduates will be aware of the foundations and development of American society.				
II. 4. Graduates will demonstrate competence in mathematics and in the use of the scientific method and laboratory technique.				
II. 5. Graduates will demonstrate creativity and critical thinking, as well as analytical and problem solving skills consistent with the technological focus of the University.				
III. 1. Graduates will have had experiences that promote a high level of professionalism and integrity, responsible decision making, confidence in approaching opportunities, and pride in their abilities.				
III. 2. Graduates will have had experiences that promote the understanding of themselves and others, sensitivity to other cultures in the context of globalization, and interpersonal skills.				

III.3. Graduates will have had experiences that promote the ability to analyze unfamiliar situations, assess risk, and formulate plans of action.				
III.4. Graduates will have been made aware of the importance of lifelong learning.				
III.5. Graduates will have had experiences that promote a global and societal perspective.				
IV.1. Graduates will have had defined roles in teamwork experiences in which both process and progress are monitored.	Direct assessment of student assignments Course Evaluation Rubric Internship Supervisory Evaluation	TBD Points for Teamwork Ratings for relevant items	Rotating schedule Rotating schedule Every semester	Every two years Every two years Every two years
IV.2. Graduates will have had team experiences in which they focus on a common goal, take responsibility for their own contributions as well as for the team's product, and evaluate one another's contribution to the team.	Direct assessment of student assignments Course Evaluation Rubric Internship Supervisory Evaluation	TBD Points for Teamwork Ratings for relevant items	Rotating schedule Rotating schedule Every semester	Every two years Every two years Every two years
IV.3. Graduates will have had team experiences in which they practice making decisions, reaching consensus, and resolving conflicts.				

V. 1. Graduates will have had opportunities to learn the value of contributing to their community and to society.				
V. 2. Graduates will have had opportunities to develop personal values as the foundation of integrity and professional ethics.				