Program Outcomes Assessment

BS in Packaging Engineering Technology

Created on: 01/27/2010 01:47:00 PM CST
Last Modified: 12/10/2014 11:21:08 AM CST

Table of Contents

General Information (Program Outcomes Assessment)

Standing Requirements

Mission Statement

The mission of the Packaging Engineering Technology Program at Indiana State University is to prepare application oriented graduates with the technical and managerial skills necessary to excel as packaging engineers and designers.

Outcomes Library

BS in Packaging Engineering Technology Outcome Set

1: Design, Fabricate, and Test Packaging Systems

Outcome	Mapping
1.1: Apply fundamental design principles	No Mapping
1.2: Create design and fabricate package system	No Mapping
1.3: Test fabricated package systems	No Mapping

2: Effective Communication

Outcome	Mapping
2.1: Exhibit good verbal communication skills	**Foundational Studies:** 10. Express themselves effectively, professionally, and persuasively both orally and in writing.
2.2: Demonstrate fluency in written communication	**Foundational Studies:** 10. Express themselves effectively, professionally, and persuasively both orally and in writing.
2.3: Deliver formal presentations Deliver formal presentations using appropriate technology	**Foundational Studies:** 10. Express themselves effectively, professionally, and persuasively both orally and in writing.

3: Effective Problem Solving

Outcome	Mapping
3.1: Use accepted methods to solve problems	**Foundational Studies:** 2. Critically evaluate the ideas of others.
3.2: Use management principles to solve problems	No Mapping
3.3: Interact with team members to communicate Interact with team members to communicate and solve problems	**Foundational Studies:** 10. Express themselves effectively, professionally, and persuasively both orally and in writing.

Curriculum Map

Active Curriculum Maps

BS in Packaging Engineering Technology Curriculum Map (See appendix)
Alignment Set: BS in Packaging Engineering Technology Outcome Set
Created: 05/30/2012 2:54:03 pm CST
Last Modified: 05/30/2012 3:14:21 pm CST

OLD BS in Packaging Engineering Technology Cirriculum Map (See appendix)
Alignment Set: OLD BS in Packaging Outcome Set
Created: 04/06/2012 10:21:03 am CST
Last Modified: 05/30/2012 3:14:27 pm CST

Communication of Outcomes

Educational objectives and student learning outcomes are posted on the program's web page.

Archive (This area is to be used for archiving pre-TaskStream assessment data and for current documents.)

Archive

File Attachments:

1. **Packaging Standards** (See appendix)
   Standards for Accreditation
2. **Self-Study Report- March 2010** (See appendix)
   Accreditation Self-Study Report (Sections I-III). Responses to ATMAE Standards.

2011-2012 Assessment Cycle

Assessment Plan

Outcomes and Measures

BS in Packaging Engineering Technology Outcome Set

1: Design, Fabricate, and Test Packaging Systems

1.1: Apply fundamental design principles

Measure: Apply fundamental design principles
Direct - Other

Details/Description: Source of assessment: PKG 180
Target:
Implementation Plan (timeline): Spring 2012, Fall 2013
Responsible Individual(s): PET Program Champion

2: Effective Communication

2.1: Exhibit good verbal communication skills

Measure: Exhibit good verbal communication skills
Direct - Other

Details/Description: Source of assessment: PKG 484
Target:
Implementation Plan (timeline): Fall 2011
Responsible Individual(s): PET Program Champion

2.3: Deliver formal presentations
Deliver formal presentations using appropriate technology

Measure: Deliver formal presentations using appropriate technology
Direct - Other

Details/Description: Source of assessment: PKG 486
Target:
Implementation Plan (timeline): Spring 2012
Responsible Individual(s): PET Program Champion

Assessment Findings

Finding per Measure

BS in Packaging Engineering Technology Outcome Set

1: Design, Fabricate, and Test Packaging Systems

1.1: Apply fundamental design principles

Measure: Apply fundamental design principles
Direct - Other

Details/Description: Source of assessment: PKG 180

Target:

Implementation Plan (timeline): Spring 2012, Fall 2013

Responsible Individual(s): PET Program Champion

Findings for Apply fundamental design principles

Summary of Findings: Fundamental design principles were taught to the students in the class. All students were required to utilize these principles to design corrugated boxes and paperboard cartons for specific products. There was a typical distribution of the quality of packages designed and fabricated, but all appeared to properly utilize the fundamental design principles in producing their designs.

Results: Target Achievement: Met

Recommendations : Continue teaching fundamental design principles as part of the Introduction to Packaging Design course.

Reflections/Notes : Since this course is an introductory course with no prerequisites, it is important to teach fundamental design principles so that students can be successful in the course.

2: Effective Communication

2.1: Exhibit good verbal communication skills

Measure: Exhibit good verbal communication skills
Direct - Other

Details/Description: Source of assessment: PKG 484

Target:

Implementation Plan (timeline): Fall 2011

Responsible Individual(s): PET Program Champion

Findings for Exhibit good verbal communication skills

Summary of Findings: All students were required to produce professional written presentations for their final projects. The findings were then presented to the class and guests as formal presentations. There was a range of abilities displayed in these presentations. About 20% were at a professional level. The rest were average to barely acceptable.

Results: Target Achievement: Not Met

Recommendations : The oral presentation skills need enhancement throughout all courses leading up to the senior level so that most students will leave with the proper oral skills to be successful in their careers. The Packaging Engineering Technology program should require more oral presentations in its classes to help students become more comfortable talking in front of people.

Reflections/Notes : It seems that those who speak in a professional manner by the time they are in senior level courses are more outgoing and comfortable in front of people. ISU needs to work harder to bring the less outgoing students out of their shells so they can better develop these oral presentation skills.

2.3: Deliver formal presentations

Measure: Deliver formal presentations using appropriate technology
Direct - Other

Deliver formal presentations using appropriate technology

Details/Description: Source of assessment: PKG 486

Target:

Implementation Plan (timeline): Spring 2012

Responsible Individual(s): PET Program Champion

Findings for Deliver formal presentations using appropriate technology

Summary of Findings: Students were required to prepare formal documents in the form of a proposal to the Board of Directors of a company for which they put together a proposed packaging line for a specific product. Students were then required to prepare, and deliver a formal presentation including Powerpoint slides. All students completed the documents, Powerpoint slides, and made formal presentations in front of peers and outside professionals. There was a typical range of quality in the presentations. All were of acceptable quality, but none were outstanding.

Results: Target Achievement: Met

Recommendations : Formal presentations with appropriate technology should be integrated into earlier courses so that students can increase their skill levels and comfort with making formal presentations.

Reflections/Notes : The skills evaluated here are important for success in industry, so it is important to ensure that all students develop these skills as much as possible before graduation.

Overall Recommendations

Both oral communication and formal presentation skills are very important to success in business and industry. It is important that these skills are enhanced throughout the undergraduate experience. Packaging Engineering Technology courses need to continue to require the use of these skills as part of coursework so that students may be better prepared when they leave.

Overall Reflection

In technology courses, it is easy to get students to do the hands-on assignments, because that is what drew them to a technology major. Many of these students are not as outgoing as are students in many other majors. For this reason, it is important that oral presentations, both with and without technological enhancements, are included as requirements in technology courses. While the outcomes evaluated in this assessment showed that there is some success in this endeavor, there is need for improvement. Measures will be taken in future classes to enhance these skills.

Action Plan

Actions

1.1: Apply fundamental design principles

Outcome

Apply fundamental design principles

Students will learn to apply the fundamental principles of design as applied to packaging structures. This will be evidenced by the designs created.

Action: Reinforce good design principles

This Action is associated with the following Findings

No supporting Findings have been linked to this Action.

Action Details: Fundamental design principles must be taught, then practiced by students so that those principles will be ingrained for future practice.

Implementation Plan (timeline): Good design principles will be emphasized in other packaging courses to ensure the concepts are ingrained. Implementation will begin with the next courses taught.

Key/Responsible Personnel: Instructor

Measures: Good designs will be measured by determining manufacturability and appropriateness of the package designed.

Resource Allocations: No extra resources are needed at this time.

Priority: Medium

2.1: Exhibit good verbal communication skills

Outcome

Exhibit good communication skills

The students must be able to communicate verbally in a professional manner to succeed.

Action: Oral communication skills

This Action is associated with the following Findings

No supporting Findings have been linked to this Action.

Action Details: Good oral communication skills are critical for success in the professional setting. Since these skills are not properly evidenced to an expected degree in Senior-level students, this issue needs action.

Implementation Plan (timeline): Increased emphasis on oral communication will be incorporated into packaging courses beginning with the following semester. This will be an ongoing emphasis to ensure better outcomes in the future.

Key/Responsible Personnel: Instructors

Measures: A rubric will be developed and given to students to help them understand what is expected. Instructors will provide more feedback on oral communication.

Resource Allocations: No extra resources are anticipated at this time.

Priority: High

2.3: Deliver formal presentations

Outcome

Deliver formal presentations using technology

Students must be able to deliver formal presentations using technology to explain their findings and recommendations.

Action: Sharpen presentation skills

This Action is associated with the following Findings

No supporting Findings have been linked to this Action.

Action Details: While students demonstrated ability to make presentations using technology, most did not demonstrate a mastery at the level hoped for in Senior-level students.

Implementation Plan (timeline): More guidance and feedback will be given to students on their presentation skills, beginning with the Fall 2012 semester.

Key/Responsible Personnel: Instructors

Measures: A rubric will be developed and given to students to help guide them in expectations for

a good presentation.

Resource Allocations: No new resources anticipated at this time.

Priority: Medium

Status Report

Action Statuses

1.1: Apply fundamental design principles

Outcome

Apply fundamental design principles

Students will learn to apply the fundamental principles of design as applied to packaging structures. This will be evidenced by the designs created.

Action: Reinforce good design principles

Action Details: Fundamental design principles must be taught, then practiced by students so that those principles will be ingrained for future practice.

Implementation Plan (timeline): Good design principles will be emphasized in other packaging courses to ensure the concepts are ingrained. Implementation will begin with the next courses taught.

Key/Responsible Personnel: Instructor

Measures: Good designs will be measured by determining manufacturability and appropriateness of the package designed.

Resource Allocations: No extra resources are needed at this time.

Priority: Medium

Status for Reinforce good design principles

Current Status: In Progress

Resource Allocation(s) Status: No new resources were allocated for this outcome, but students are being required to utilize the package design software in the packaging lab.

Next Steps/Additional Information: As this continues, it will be possible to determine if there are improved skills in students in the upper-level courses as a result of this change.

2.1: Exhibit good verbal communication skills

Outcome

Exhibit good communication skills

The students must be able to communicate verbally in a professional manner to succeed.

Action: Oral communication skills

Action Details: Good oral communication skills are critical for success in the professional setting. Since these skills are not properly evidenced to an expected degree in Senior-level students, this issue needs action.

Implementation Plan (timeline): Increased emphasis on oral communication will be incorporated into packaging courses beginning with the following semester. This will be an ongoing

emphasis to ensure better outcomes in the future.

Key/Responsible Personnel: Instructors

Measures: A rubric will be developed and given to students to help them understand what is expected. Instructors will provide more feedback on oral communication.

Resource Allocations: No extra resources are anticipated at this time.

Priority: High

Status for Oral communication skills

Current Status: In Progress

Resource Allocation(s) Status: Students are being required to speak in front of the class more, with critique provided by the instructor. A rubric is being developed to share with students.

Next Steps/Additional Information: Develop the rubric for evaluation of oral communication.

2.3: Deliver formal presentations

Outcome

Deliver formal presentations using technology

Students must be able to deliver formal presentations using technology to explain their findings and recommendations.

Action: Sharpen presentation skills

Action Details: While students demonstrated ability to make presentations using technology, most did not demonstrate a mastery at the level hoped for in Senior-level students.

Implementation Plan (timeline): More guidance and feedback will be given to students on their presentation skills, beginning with the Fall 2012 semester.

Key/Responsible Personnel: Instructors

Measures: A rubric will be developed and given to students to help guide them in expectations for a good presentation.

Resource Allocations: No new resources anticipated at this time.

Priority: Medium

Status for Sharpen presentation skills

Current Status: In Progress

Resource Allocation(s) Status: Students are being required to deliver formal presentations using technology as a tool, beginning Fall 2012.

Next Steps/Additional Information: Develop a formal rubric to evaluate formal presentations.

Status Summary

For Outcome 1.1: Apply fundamental design principles, the target outcome was met.

For Outcome 2.1: Exhibit good communication skills, the target outcome was not met.

For Outcome 2.3: Deliver formal presentations, the target outcome was met, but minimally.

Summary of Next Steps

For Outcome 1.1: Apply fundamental design principles, the target outcome was met, so this will be re-evaluated Fall 2013 when PKG 180 is taught again. In the meantime, more practice of design skills is being implemented in coursework, beginning Fall 2012, which will enable future evaluation of effectiveness.

For Outcome 2.1: Exhibit good communication skills, the target outcome was not met. This is being addressed by requiring more oral presentations in classes, starting Fall 2012, to help students develop better oral communication skills. A rubric is also being developed to help students understand what is expected.

For Outcome 2.3: Deliver formal presentations, the target outcome was met, but minimally. This is being addressed by teaching more about good presentation methods and allowing students more practice, beginning with Fall 2012 semester. A rubric is being developed to help students understand what is expected.

2012-2013 Assessment Cycle

Assessment Plan

Outcomes and Measures

BS in Packaging Engineering Technology Outcome Set

1: Design, Fabricate, and Test Packaging Systems

1.2: Create design and fabricate package system

Measure: Evaluation of in class project
Direct - Other

Details/Description: Source of assessment: PKG 482
Target:
Implementation Plan (timeline): Fall 2012
Responsible Individual(s): PET Program Champion

2: Effective Communication

2.2: Demonstrate fluency in written communication

Measure: Evaluation of case studies and reflection papers
Direct - Other

Details/Description: Source of assessment: TMGT 351
Target:
Implementation Plan (timeline): Spring 2013
Responsible Individual(s): PET Program Champion

2.3: Deliver formal presentations

Deliver formal presentations using appropriate technology

Measure: Evaluation of in class project per rubric

Details/Description: Source of assessment: PKG 486
Target:
Implementation Plan (timeline): Spring 2012
Responsible Individual(s): PET Program Champion

3: Effective Problem Solving

3.1: Use accepted methods to solve problems

Measure: Evaluation of semester class project

Details/Description: Source of assessment: PKG 380
Target:
Implementation Plan (timeline): Spring 2013
Responsible Individual(s): PET Program Champion

3.2: Use management principles to solve problems

Measure: ATMAE Certification Exam
Direct - Exam

Details/Description: Students will take the ATMAE Certified Technology Manager Exam in the Spring of 2013. We will analyze the results of the categories of Management, Production, and Quality Control

Target: It is expected that 70% of the students will score better than 50% in each of the exam categories

Implementation Plan (timeline): Spring 2013, 2016, 2019

Responsible Individual(s): department chair

Measure: Evaluation of internship activities
Direct - Other

Details/Description: Source of assessment: TMGT 351

Target:

Implementation Plan (timeline): Spring 2013

Responsible Individual(s): PET Program Champion

3.3: Interact with team members to communicate

Interact with team members to communicate and solve problems

Measure: Evaluation of in class activities per rubric
Direct - Other

Details/Description: Source of assessment: PKG 280

Target:

Implementation Plan (timeline): Fall 2012

Responsible Individual(s): PET Program Champion

Assessment Findings

Finding per Measure

BS in Packaging Engineering Technology Outcome Set

1: Design, Fabricate, and Test Packaging Systems

1.2: Create design and fabricate package system

Measure: Evaluation of in class project
Direct - Other

Details/Description: Source of assessment: PKG 482

Target:

Implementation Plan (timeline): Fall 2012

Responsible Individual(s): PET Program Champion

Findings for Evaluation of in class project

Summary of Findings: Two teams of students learned the steps and procedures for designing and fabricating a package system for a consumer product. The teams went through all stages from product concept to display of the packaged product on a retail shelf, including testing of the

package system to determine its effectiveness. Both teams created successful designs and prototypes, successfully tested them, and presented their findings.

Results: Target Achievement: Met

Recommendations : This project was successful, but this may have more meaning to the students in the future to work with a real company on a new product concept.

Reflections/Notes : This project gives students a taste of what a package designer/engineer does in everyday life. Students feel that they have accomplished something meaningful upon completion.

2: Effective Communication

2.2: Demonstrate fluency in written communication

Measure: Evaluation of case studies and reflection papers
Direct - Other

Details/Description: Source of assessment: TMGT 351

Target:

Implementation Plan (timeline): Spring 2013

Responsible Individual(s): PET Program Champion

Findings for Evaluation of case studies and reflection papers

No Findings Added

2.3: Deliver formal presentations

Deliver formal presentations using appropriate technology

Measure: Evaluation of in class project per rubric

Details/Description: Source of assessment: PKG 486

Target:

Implementation Plan (timeline): Spring 2012

Responsible Individual(s): PET Program Champion

Findings for Evaluation of in class project per rubric

Summary of Findings: This course was conducted over Blackboard, so it was more difficult to teach than it would have been face-to-face. However, the formal presentations were done during finals week in the packaging lab. While there was variability in the quality of the presentations, they were all adequate, and met the minimum requirements of this outcome.

Results: Target Achievement: Met

Recommendations : It is recommended that more emphasis is placed upon proper execution of formal presentations with technology.

Reflections/Notes : By the Senior year when most students take PKG 486, they have been required to give formal presentations in several courses. There is room for improvement, however, and more emphasis needs to be given to this outcome.

3: Effective Problem Solving

3.1: Use accepted methods to solve problems

Measure: Evaluation of semester class project

Details/Description: Source of assessment: PKG 380

Target:

Implementation Plan (timeline): Spring 2013

Responsible Individual(s): PET Program Champion

Findings for Evaluation of semester class project

No Findings Added

3.2: Use management principles to solve problems

Measure: ATMAE Certification Exam
Direct - Exam

Details/Description: Students will take the ATMAE Certified Technology Manager Exam in the Spring of 2013. We will analyze the results of the categories of Management, Production, and Quality Control

Target: It is expected that 70% of the students will score better than 50% in each of the exam categories

Implementation Plan (timeline): Spring 2013, 2016, 2019

Responsible Individual(s): department chair

Findings for ATMAE Certification Exam

Summary of Findings: A total of 10 packaging majors took the CTM exam in the spring of 2013. In the category of Quality, the average score was 28%, with only 10% of the students achieving the target. In the category of Production, the average score was 42%, with 50% of the students achieving the target. In the category of Management, the average score was 49%, with 40% of the students achieving the target.

Results: Target Achievement: Not Met

Recommendations : Continue the exam in future years to trend data

Reflections/Notes : The ten students who took the exam represented a large portion of the junior and senior class members.

Substantiating Evidence:

ATMAE Certification Exam Results 2012-13 (Excel Workbook (Open XML)) (See appendix)

Measure: Evaluation of internship activities
Direct - Other

Details/Description: Source of assessment: TMGT 351

Target:

Implementation Plan (timeline): Spring 2013

Responsible Individual(s): PET Program Champion

Findings for Evaluation of internship activities

No Findings Added

3.3: Interact with team members to communicate

Measure: Evaluation of in class activities per rubric
Direct - Other

Interact with team members to communicate and solve problems

Details/Description: Source of assessment: PKG 280

Target:

Implementation Plan (timeline): Fall 2012

Responsible Individual(s): PET Program Champion

Findings for Evaluation of in class activities per rubric

Summary of Findings: Students were required to conduct a variety of lab activities in teams of two to four throughout the semester. There was wide variation in the success of the groups. Since PKG 280 is an introductory class with no prerequisite, many students had no prior experience with this way of doing things, especially our international students. All students made progress toward learning to communicate well in teams throughout the semester, but the overall results were not as good as hoped for.

Results: Target Achievement: Not Met

Recommendations : A lesson on how to communicate in a team should be developed to attempt to strengthen the results for the future.

Reflections/Notes : Teamwork is so pervasive in school and the workplace that it is easy to think that it will come automatically to students, but that is not always the case. It is sometimes necessary to teach basic team communication.

Overall Recommendations

No text specified

Overall Reflection

No text specified

Action Plan

Actions

Action Plan

Outcome

Action Plan 2012-13

Action: Shift focus toward engineering technology and ETAC of ABET standards

This Action is associated with the following Findings

No supporting Findings have been linked to this Action.

Action Details: The department faculty have decided to shift the program focus toward engineering technology and ETAC of ABET standards. The results listed above indicate that significant changes to the program and assessment procedures are required. The packaging program needs to undergo curriculum enhancement to achieve ABET accreditation standards. Curriculum meetings will need to take place in the near future with regard to curriculum requirements and assessment standards

Implementation Plan (timeline): fall 2014

Key/Responsible Personnel:

Measures:

Resource Allocations:

Priority: Medium

Status Report

Action Statuses

Action Plan

Outcome

Action Plan 2012-13

Action: Shift focus toward engineering technology and ETAC of ABET standards

Action Details: The department faculty have decided to shift the program focus toward engineering technology and ETAC of ABET standards. The results listed above indicate that significant changes to the program and assessment procedures are required. The packaging program needs to undergo curriculum enhancement to achieve ABET accreditation standards. Curriculum meetings will need to take place in the near future with regard to curriculum requirements and assessment standards

Implementation Plan (timeline): fall 2014

Key/Responsible Personnel:

Measures:

Resource Allocations:

Priority: Medium

Status for Shift focus toward engineering technology and ETAC of ABET standards

Current Status: Not started

Resource Allocation(s) Status:

Next Steps/Additional Information: As of May 2014 no further action has been taken. There is still a plan to meet and discuss curriculum changes needed to improve this standard

Status Summary

No text specified

Summary of Next Steps

No text specified

2013-2014 Assessment Cycle

Assessment Plan

Outcomes and Measures

BS in Packaging Engineering Technology Outcome Set

1: Design, Fabricate, and Test Packaging Systems

1.3: Test fabricated package systems

Measure: New ATMAE CTM certification exam
Direct - Exam

Details/Description: The ATMAE CTM certification exam has been revised with a body of knowledge more applicable to technology and management functions within technology.

Target: 70% of the packaging majors taking the CTM exam will achieve at least 50% on the project category of the CTM exam

Implementation Plan (timeline): Spring 2014, 2017, 2020

Responsible Individual(s): department chair

2: Effective Communication

2.2: Demonstrate fluency in written communication

Measure: New ATMAE CTM certification exam
Direct - Exam

Details/Description: The ATMAE CTM certification exam has been revised with a body of knowledge more applicable to technology and management functions within technology.

Target: 70% of the packaging majors taking the CTM exam will achieve at least 50% on the self-management category of the CTM exam

Implementation Plan (timeline): Spring 2014, 2017, 2020

Responsible Individual(s): department chair

3: Effective Problem Solving

3.1: Use accepted methods to solve problems

Measure: New ATMAE CTM certification exam
Direct - Exam

Details/Description: The ATMAE CTM certification exam has been revised with a body of knowledge more applicable to technology and management functions within technology.

Target: 70% of the packaging majors taking the CTM exam will achieve at least 50% on the leadership category of the CTM exam

Implementation Plan (timeline): Spring 2014, 2017, 2020

Responsible Individual(s): department chair

Assessment Findings

Finding per Measure

BS in Packaging Engineering Technology Outcome Set

1: Design, Fabricate, and Test Packaging Systems

1.3: Test fabricated package systems

Measure: New ATMAE CTM certification exam
Direct - Exam

Details/Description: The ATMAE CTM certification exam has been revised with a body of knowledge more applicable to technology and management functions within technology.

Target: 70% of the packaging majors taking the CTM exam will achieve at least 50% on the project category of the CTM exam

Implementation Plan (timeline): Spring 2014, 2017, 2020

Responsible Individual(s): department chair

Findings for New ATMAE CTM certification exam

Summary of Findings: A total of five packaging students took the exam: 3 seniors, 1 junior, and 1 sophomore. The five averaged 43% on the project category with only 40% achieving the target.

Results: Target Achievement: Not Met

Recommendations : Clearly, the primary goal must be to get more students to take the exam so that better recommendations can be made.

Reflections/Notes : The exam appears to measure appropriately however the small sample size may be skewing the actual abilities of the students.

Substantiating Evidence:

AETM CMT Certification Exam Results 2014 (Excel Workbook (Open XML)) (See appendix)

2: Effective Communication

2.2: Demonstrate fluency in written communication

Measure: New ATMAE CTM certification exam
Direct - Exam

Details/Description: The ATMAE CTM certification exam has been revised with a body of knowledge more applicable to technology and management functions within technology.

Target: 70% of the packaging majors taking the CTM exam will achieve at least 50% on the self-management category of the CTM exam

Implementation Plan (timeline): Spring 2014, 2017, 2020

Responsible Individual(s): department chair

Findings for New ATMAE CTM certification exam

Summary of Findings: A total of five packaging students took the exam: 3 seniors, 1 junior, and 1 sophomore. The five averaged 46% on the leadership category with only 20% achieving the target.

Results: Target Achievement: Not Met

Recommendations : Clearly, the primary goal must be to get more students to take the exam so that better recommendations can be made.

Reflections/Notes :

3: Effective Problem Solving

3.1: Use accepted methods to solve problems

Measure: New ATMAE CTM certification exam
Direct - Exam

Details/Description: The ATMAE CTM certification exam has been revised with a body of knowledge more applicable to technology and management functions within technology.

Target: 70% of the packaging majors taking the CTM exam will achieve at least 50% on the leadership category of the CTM exam

Implementation Plan (timeline): Spring 2014, 2017, 2020

Responsible Individual(s): department chair

Findings for New ATMAE CTM certification exam

Summary of Findings: A total of five packaging students took the exam: 3 seniors, 1 junior, and 1 sophomore. The five averaged 48% on the leadership category with only 40% achieving the target.

Results: Target Achievement: Not Met

Recommendations : Clearly, the primary goal must be to get more students to take the exam so that better recommendations can be made.

Reflections/Notes :

Overall Recommendations

No text specified

Overall Reflection

No text specified

Action Plan

Actions

Action Plan

Outcome

Action Plan 2012-13

Action: Shift focus toward engineering technology and ETAC of ABET standards

This Action is associated with the following Findings
No supporting Findings have been linked to this Action.

Action Details: The department faculty have decided to shift the program focus toward engineering technology and ETAC of ABET standards. The results listed above indicate that significant changes to the program and assessment procedures are required. The packaging program needs to undergo curriculum enhancement to achieve ABET accreditation standards. Curriculum meetings will need to take place in the near future with regard to curriculum requirements and assessment standards

The CTM Exam will be continued with a better plan for achieving more appropriate students taking the exams.

Implementation Plan (timeline): Spring 2015

Key/Responsible Personnel: department chair

Measures:

Resource Allocations:

Priority: Medium

Status Report

Action Statuses

Action Plan

Outcome

Action Plan 2012-13

Action: Shift focus toward engineering technology and ETAC of ABET standards

Action Details: The department faculty have decided to shift the program focus toward engineering technology and ETAC of ABET standards. The results listed above indicate that significant changes to the program and assessment procedures are required. The packaging program needs to undergo curriculum enhancement to achieve ABET accreditation standards. Curriculum meetings will need to take place in the near future with regard to curriculum requirements and assessment standards

The CTM Exam will be continued with a better plan for achieving more appropriate students taking the exams.

Implementation Plan (timeline): Spring 2015

Key/Responsible Personnel: department chair

Measures:

Resource Allocations:

Priority: Medium

Status for Shift focus toward engineering technology and ETAC of ABET standards

No Status Added

Status Summary

No text specified

Summary of Next Steps

No text specified

2014-2015 Assessment Cycle

Assessment Plan

Outcomes and Measures

BS in Packaging Engineering Technology Outcome Set

1: Design, Fabricate, and Test Packaging Systems

1.1: Apply fundamental design principles

Measure: ATMAE Certification Exams – sections of the Certified Technical Professional Exam
Direct - Exam

Details/Description: Students in the spring of 2015 in the PKG 489 course will take the CTP exam. Relevant competencies will be analyzed for achievement of this standard.

Target: 70% of the students will achieve at least 70% on the appropriate exam competencies

Implementation Plan (timeline): Spring 2015, 2018

Responsible Individual(s): department chair

2: Effective Communication

2.1: Exhibit good verbal communication skills

Measure: ATMAE Certification Exams – sections of the Certified Technical Professional Exam
Direct - Exam

Details/Description: Students in the spring of 2015 in the PKG 489 course will take the CTP exam. Relevant competencies will be analyzed for achievement of this standard.

Target: 70% of the students will achieve at least 70% on the appropriate exam competencies

Implementation Plan (timeline): Spring 2015, 2018

Responsible Individual(s): department chair

2.3: Deliver formal presentations

Deliver formal presentations using appropriate technology

Measure: Created Rubric
Direct - Student Artifact

Details/Description: Students in the spring of 2015 in the PKG 489 course will create a final project. The project will be graded using a rubric that addresses the level of achievement of this standard.

Target: 70% of the students will achieve at least 70% on the rubric

Implementation Plan (timeline): Spring 2015, 2018

Responsible Individual(s): department chair

Assessment Findings

Finding per Measure

BS in Packaging Engineering Technology Outcome Set

1: Design, Fabricate, and Test Packaging Systems

1.1: Apply fundamental design principles

Measure: ATMAE Certification Exams – sections of the Certified Technical Professional Exam
Direct - Exam

Details/Description: Students in the spring of 2015 in the PKG 489 course will take the CTP exam. Relevant competencies will be analyzed for achievement of this standard.

Target: 70% of the students will achieve at least 70% on the appropriate exam competencies

Implementation Plan (timeline): Spring 2015, 2018

Responsible Individual(s): department chair

Findings for ATMAE Certification Exams – sections of the Certified Technical Professional Exam

No Findings Added

2: Effective Communication

2.1: Exhibit good verbal communication skills

Measure: ATMAE Certification Exams – sections of the Certified Technical Professional Exam
Direct - Exam

Details/Description: Students in the spring of 2015 in the PKG 489 course will take the CTP exam. Relevant competencies will be analyzed for achievement of this standard.

Target: 70% of the students will achieve at least 70% on the appropriate exam competencies

Implementation Plan (timeline): Spring 2015, 2018

Responsible Individual(s): department chair

Findings for ATMAE Certification Exams – sections of the Certified Technical Professional Exam

No Findings Added

2.3: Deliver formal presentations

Deliver formal presentations using appropriate technology

Measure: Created Rubric
Direct - Student Artifact

Details/Description: Students in the spring of 2015 in the PKG 489 course will create a final project. The project will be graded using a rubric that addresses the level of achievement of this standard.

Target: 70% of the students will achieve at least 70% on the rubric

Implementation Plan (timeline): Spring 2015, 2018

Responsible Individual(s): department chair

Findings for Created Rubric

No Findings Added

Overall Recommendations

No text specified

Overall Reflection

No text specified

Action Plan

Status Report

2015-2016 Assessment Cycle

- **Assessment Plan**
- **Assessment Findings**
- **Action Plan**
- **Status Report**

2016-2017 Assessment Cycle

- **Assessment Plan**
- **Assessment Findings**

2017-2018 Assessment Cycle

- **Assessment Plan**
- **Assessment Findings**

2018-2019 Assessment Cycle

- **Assessment Plan**
- **Assessment Findings**

2019-2020 Assessment Cycle

- **Assessment Plan**
- **Assessment Findings**

Appendix

A. **BS in Packaging Engineering Technology Curriculum Map** (Curriculum Map)
B. **OLD BS in Packaging Engineering Technology Cirriculum Map** (Curriculum Map)
C. **Self-Study Report- March 2010** (Word Document (Open XML))
D. **Packaging Standards** (Word Document (Open XML))
E. **ATMAE Certification Exam Results 2012-13** (Excel Workbook (Open XML))
F. **AETM CMT Certification Exam Results 2014** (Excel Workbook (Open XML))

INDIANA STATE UNIVERSITY

COLLEGE OF TECHNOLOGY

ACCREDITATION SELF-STUDY REPORT

March 2010

INDIANA STATE UNIVERSITY

COLLEGE OF TECHNOLOGY

ACCREDITATION SELF-STUDY REPORT

SECTION I

Requests for Re-Accreditation and Accreditation

SECTION II

General Information

SECTION III

Responses to ATMAE Standards From:

Advanced Manufacturing Management, BS
Automotive Technology Management, BS
Computer Engineering Technology, BS
Electronics Technology, BS
Packaging, BS
Safety Management, BS
Technology Management, BS
Health & Safety (Occupational Safety Management), MS

March 2010

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Appendices

Section III **Major Programs – Compliance with Standards**

Automotive Technology Management, BS

Computer Engineering Technology, BS

Electronics Technology, BS

Advanced Manufacturing Management, BS

Packaging, BS

Technology Management, BS

Safety Management, BS

Health & Safety (Occupational Safety Management), MS

The Association of Technology, Management, and Applied Engineering

ATMAE
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COPY

Request for Initial Accreditation or Reaccreditation Visit

Please Type Information

1. **Institution** Indiana State University
   Institution Address Terre Haute, IN 47809
2. **Head of Institution** Dr. Daniel Bradley Title President
   Telephone 812-237-4000 Fax 812-237-7948
3. **Head of Program** Dr. Bradford Sims Title Dean
   Telephone 812-237-3166 Fax 812-237-3733
4. **Contact Person** Dr. Jeffrey McNabb Title Assoc. Dean
   Mailing Address ISU College of Technology, Terre Haute, IN 47809
   Telephone 812-237-2987 Fax 812-237-2823
   Email Address jmcnabb@indstate.edu

5. **Type of Visit Requested:**
   [ ] Initial Accreditation [x] Reaccreditation [ ] 2-Year Follow-Up

6. **Program Level:** [x] Associate [x] Baccalaureate [ ] Master

7. **List Industrial Technology Program(s) (including options, concentrations, and specializations) to be considered** (Note: All options, specializations, and concentrations in a degree program MUST be reviewed. Reference standards 5.3.3 and 6.3.3).

Degree	Program Name	Option, Concentration, or Specialization
SEE ATTACHED SHEET		

(Attach additional sheet if necessary)

8. **Billing Address:**
   Dean, College of Technology, Indiana State University
   Terre Haute, IN 47809

9. **Regional Accrediting Agency:** North Central Association of Colleges & Secondary Schools

10. **Proposed Dates for Visit** (Note: a minimum of two full days are required for the visit plus a travel day).
    First Choice: March 28, 29, 30, 2010 Second Choice: April 4, 5, 6, 2010

11. **Recommended Team Member Lodging** (include name, address, and telephone number).
    Hilton Garden Inn, 750 Wabash Ave.
    Terre Haute, IN 47807 812-234-8900

12. **Authorized Signatures:**
    Head of Institution: [signature] Date: 7/20/09
    Head of Program: [signature] (Interim Dean) Date: 7/21/09
    Institution Contact Person: [signature] Date: 7/21/09

Mail this form to: Executive Director, The Association of Technology, Management, and Applied Engineering, 3300 Washtenaw Avenue, Suite 220, Ann Arbor, MI 48104-4200. Telephone 734-677-0720. Fax 734-677-0046. Email atmae@atmae.org

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2009
Indiana State University
College of Technology
Programs Requesting Reaccreditation

Programs from the Electronics, Computer, and Mechanical Engineering Technology Department

- Automotive Technology Management, B.S.
- Electronics and Computer Technology, A.S.
- Electronics Technology, B.S.

Programs from the Technology Management Department

- Advanced Manufacturing Management, B.S. (previously Manufacturing Technology)
- Packaging, B.S.
- Technology Management, B.S. (previously Industrial Technology)

Indiana State University
More. From day one.

College of Technology,
Office of Associate Dean

Terre Haute, Indiana 47809
812-237-2987
888-478-7003
Fax 812-237-2823

COPY

November 24, 2009

Rick Coscarelli, Executive Director
The Association of Technology Management and Applied Engineering
3300 Washtenaw Ave., Suite 220
Ann Arbor, MI 48104-4200

Dear Dr. Coscarelli:

As we have discussed over the phone, Indiana State University would like to make some changes in our list of programs to be accredited by ATMAE in 2010. (Our original request is attached.) Below is our altered request.

Programs from the Electronics, Computer, and Mechanical Engineering Technology Department, College of Technology

- Automotive Technology Management, B.S.
- Electronics Technology, B.S.

Programs from the Technology Management Department, College of Technology

- Advanced Manufacturing Management, B.S. (previously Manufacturing Technology)
- Packaging, B.S.
- Technology Management, B.S. (previously Industrial Technology)

Programs from the Safety Management Department of the College of Nursing, Health, and Human Services

- Safety Management, B.S.
- Health and Safety (Occupational Safety Management), M.S.

Yours truly,

Jeffrey McNabb

Dr. Jeffrey McNabb, Associate Dean
College of Technology,
Indiana State University

Indiana State University
More. From day one.

COPY

College of Technology,
Office of Associate Dean

Terre Haute, Indiana 47809
812-237-2987
888-478-7003
Fax 812-237-2823

December 9, 2009

Rick Coscarelli, Executive Director
The Association of Technology Management and Applied Engineering
3300 Washtenaw Ave., Suite 220
Ann Arbor, MI 48104-4200

Dear Dr. Coscarelli:

Indiana State University would like to make some changes in our list of programs to be accredited by ATMAE in 2010.

We request that the six programs in the Electronics, Computer, and Mechanical Engineering Technology Department and in the Technology Management Department be evaluated using the traditional standard model.

Programs from the Electronics, Computer, and Mechanical Engineering Technology Department, College of Technology

- Automotive Technology Management, B.S.
- *Computer Engineering Technology, B.S.* *
- Electronics Technology, B.S.

* We would like to include Computer Engineering Technology although it is also seeking TAC-ABET accreditation. Formerly known as Computer Hardware Technology, this program has had only minor revisions to its curriculum, and we therefore are asking for its reaccreditation rather than an initial accreditation.

Programs from the Technology Management Department, College of Technology

- Advanced Manufacturing Management, B.S. (previously Manufacturing Technology)
- Packaging, B.S.
- Technology Management, B.S. (previously Industrial Technology)

We would like the two programs below to be evaluated using the outcomes assessment model.

Programs from the Safety Management Department of the College of Nursing, Health, and Human Services

- Safety Management, B.S.
- Health and Safety (Occupational Safety Management), M.S.

If, due to these changes, it is deemed necessary to add another accrediting team member, we will understand and cover the additional cost.

Yours truly,

Jeffrey McNabb

Dr. Jeffrey McNabb, Associate Dean
College of Technology,
Indiana State University

JGM/re

Robert Eberwein

From: Jeffrey McNabb
Sent: Monday, December 21, 2009 9:00 AM
To: Rick Coscarelli at ATMAE/NAIT
Cc: Robert Eberwein
Subject: RE: ATMAE - 2010 Visit to Indiana State University

Thanks Rick,

Everything you have mentioned looks right. Jeff

From: Rick Coscarelli at ATMAE/NAIT [mailto:rcoscarelli@atmae.org]
Sent: Monday, December 14, 2009 3:08 PM
To: Jeffrey McNabb
Cc: ConnorSG@appstate.edu; mac13@indstate.edu
Subject: ATMAE - 2010 Visit to Indiana State University

Jeff and Malcolm,

Thanks for the update on your Programs/Options and that of the Safety Management Department.

I have made the necessary changes to our database to reflect the Master Program in Health and Safety as an Initial Accreditation and have revived the "Computer Hardware Technology" Program which will now be renamed "Computer Engineering Technology" and considered a reaccreditation.

Sid will be working on setting up the Team. It will have a fourth Team member to handle the Master program and the Safety Management Program. You institution will be billed for the additional member per our policy:
Accreditation Visits - Fee for Extra Team Members / Extra Days on Campus:
Fee: Based on a proportionate share of actual expenses.
Fee Calculation: If the Accreditation Personnel Committee determines that more than three team members are required for any visit, or that more than three (3) on-campus days are required for the visit, or if a follow-up on-site visit is required, then the institution will be billed for actual travel costs for the extra team member(s) or additional visit days, or for the follow-up visit. "Actual travel costs" for each extra team member will be determined by dividing the total travel costs by the number of team members. Actual travel costs for each additional visit day will be determined by dividing the total travel costs by the number of on-campus days required for the visit.
Billing: The fee for extra team members / extra days on campus will be billed immediately upon calculation of all direct expenses related to the visit.
Due: The invoice for the Extra Team members / Extra Days on Campus Fee is due and payable 30 days after receipt.
(See 2009 Accreditation Handbook 3.6.3)

Also Jeff, per your request, your Programs will be evaluated using the Traditional 2009 Standards and Malcolm's Programs, both B.S. and M.S. will be using the Outcomes Assessment Model.

Let me know if you see anything that needs changing or update.

Thanks.

Rick

Rick Coscarelli
Executive Director, ATMAE formally NAIT
3300 Washtenaw Ave., Suite 220
Ann Arbor, MI 48104
734-677-0720 voice
734-677-0046 fax
rcoscarelli@nait.org

Robert Eberwein

From: Rick Coscarelli at ATMAE/NAIT [rcoscarelli@atmae.org]
Sent: Monday, December 21, 2009 4:14 PM
To: Jeffrey McNabb; Robert Eberwein
Cc: ConnorSG@appstate.edu
Subject: ATMAE - Initial and Reaccreditation Visit - Indiana State University
Attachments: TEAMASSN Indiana State Univ.DOC; Institution Personnel ISUIT.pdf; Institution Personnel ISUSafety.pdf; Contact&TeamChairChecklist.doc

Importance: High

Jeff,

Indiana State University
Initial and Reaccreditation Visit - March 28-30, 2010

Attached is the "Notification of Team Assignments and Visitation Dates" form for you to sign and get back to me ASAP.

Also, please find out who the contact person should be for Safety. I would like to make sure my records are correct. I understand that you will be the point person for our Team and coordinate activities with the Safety Department, thanks.

You will not receive any hard copy of this notification.

Thanks.

Rick

Rick Coscarelli
Executive Director, ATMAE formally NAIT
3300 Washtenaw Ave., Suite 220
Ann Arbor, MI 48104
734-677-0720 voice
734-677-0046 fax
rcoscarelli@nait.org

The Association of Technology, Management, and Applied Engineering
Notification of Team Assignments and Visitation Dates

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A. General Information:

				X	Master Level
X	Initial Accreditation		Associate Level		Consultant Visit
X	Reaccreditation	X	Baccalaureate Level		Visit (follow-up)

Contact Person:	**Dr. Jeff McNabb, Associate Dean IT**
Institution:	Indiana State University
Address 1:	ISU, College of Technology
Address 2:	
City, State, & Zip Code:	Terre Haute, IN 47809
Telephone Number:	812-237-2987
Email Address:	jmcnabb@indstate.edu

Jeff McNabb will coordinate with Safety

B. Tentative Team Assignments: (Traditional 2009 Standards for IT Dept. – Outcomes Assessment for Safety BS and Master)

Team Chair:	**Dr. Verna M. Fitzsimmons**	**Team Member 2:**	Mr. Todd Myers
Employer:	Kent State University	Employer:	Ohio University
Address 1:	Applied Business & Technology	Address 1:	Rm 124B, Stocker Center
Address 2:	P. O. Box 5190	Address 2:	
City, State, & Zip:	Kent, OH 44242	City, State, & Zip:	Athens, OH 45701-2979
Home Telephone:		Home Telephone:	
Business Telephone:	330-672-7064	Business Telephone:	(740) 593-1455
Email Address:	vfitzsim@kent.edu	Email Address:	myerst2@ohio.edu

Additional Cost if 4 or more Team Members see section 3.6.3 of Handbook

Team Member 3	Dr. Mandara Savage, CSIT	**Team Member 4:**	Dr. Jess Godbey
Employer:	Southern Illinois Univ-Carbondale	Employer:	Jacksonville State Univ.
Address 1:	Technology	Address 1:	134 Ayers Hall
Address 2:	Mailcode 6603	Address 2:	700 Pelham Road North
City, State, & Zip:	Carbondale, IL 62901-6603	City, State, & Zip:	Jacksonville, AL 36265
Home Telephone:		Home Telephone:	
Business Telephone:	618-536-3396	Business Telephone:	(256) 782-5080
Email Address:	msavage@engr.siu.edu	Email Address:	jgodbey@jsu.edu

C. The following dates have been selected for the on-site visit: **March 28-30, 2010**

D. A copy of your Self-Study Report must be sent to each team member by: **February 26, 2010**

If the above team member assignments and visitation dates are acceptable to your institution, please sign below, return the original to the Executive Director, and ***forward copies to your institution head and program head.***

Institution Contact Person Jeff McNabb **Date** 12-22-09

Mail this form to: Executive Director, The Association of Technology, Management, and Applied Engineering, 3300 Washtenaw Avenue, Suite 220, Ann Arbor, MI 48104-4200. Tel: 734-677-0720. Fax: 734-677-0046. Email:atmae@atmae.org.

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Standards for Accreditation
Baccalaureate Degree Programs

Technology Management
Department

Packaging
B.S.

6. Standards for Accreditation – Baccalaureate Degree Programs

The objective of accreditation is to ensure that programs in Industrial Technology which are accredited meet or exceed established standards. Consideration will be given to both the qualitative and quantitative criteria set forth in these standards.

6.1 Preparation of Self-Study Report

Self-Analysis: The Self-Study Report shall follow the guidelines and be completed by a representative portion of the institution's administrative staff, teaching faculty, and students.

Guided by College of Technology faculty and administrators who have participated in the accreditation process at other institutions of higher education, and by a review of the 2004 reaccreditation material, the faculty of the Department of Technology Management planned a course of action to complete the 2010 reaccreditation material.

Those listed below participated in the preparation of the reaccreditation materials.

Dr. Brad Sims, Dean, College of Technology
Dr. Jeff McNabb, Associate Dean, College of Technology
Dr. James Smallwood, Chair, Department of Technology Management
Dr. Marion Schafer, Associate Professor, Department of Technology Management
John Jukes, Student, Department of Technology Management
Other faculty, staff, and students contributed materials as well.
Office of Vice President of Academic Affairs
Office of Vice President of Administrative Affairs
Office of Vice President of Development and Public Affairs

Documents not included in the reaccreditation report are available in the Office of the Dean and/or the Department Chair.

6.2 Philosophy and Objectives

6.2.1 Mission: The department, college, and institutional missions shall be compatible with the approved definition of Industrial Technology.

Within the concept of a university where truth and knowledge are pursued, preserved, and transmitted so that enlightenment may guide the human experience, Indiana State University seeks to fulfill its particular mission.

The University endeavors to provide educational opportunities to all qualified applicants for admission to its several and various undergraduate and graduate programs, in the fulfillment of its role and mission as a general, multi-purpose university. One of the major purposes of the institution is to offer each and every student as broad an opportunity for study and the acquisition of knowledge in the many fields, areas, and disciplines offered by the University as his or her ability, interest, and talent will allow. This purpose includes the imparting to the student of knowledge by an informed, expert faculty and the development of an understanding and appreciation of the role and responsibility of a learned and educated individual in our society. The University serves the academic, intellectual, cultural, and vocational needs of students who possess a wide range of academic preparation, ambitions, goals, and intellectual development.

Packaging Program

The ISU Packaging program provides hands-on experiences with community and industry partners to foster creativity and ethics in both individual and team situations to prepare students as professionals in the engineering and design of packaging systems.

Technology Management Department
Preamble
The Department of Technology Management consists of the following programs:

- Technology Management
- Construction Management
- Packaging
- Advanced Manufacturing Management
- Human Resource Development
- Career and Technical Education
- Technology and Engineering Education
- Industrial Technology

Mission
Our mission is to instill knowledge and skills from our undergraduate and graduate program areas through experiential learning that enable our graduates to become leaders in education and industry.
Vision
Our department will have the lead programs in the nation to advance teaching, scholarship, research, and innovation in the fields of technology management, education, and training.

College of Technology
The College of Technology will provide exemplary undergraduate and graduate programs, generate solutions and knowledge through research, and serve the technology needs of the State, the nation, and the international community.

Indiana State University Mission Statement
Indiana State University, a doctoral research university, combines a tradition of strong undergraduate and graduate education with a focus on community and public service. We integrate teaching, research, and creative activity in an engaging, challenging, and supportive learning environment to prepare productive citizens for Indiana and the world.

6.2.2 Program Definition: The program of study definition and purpose shall be compatible with the approved definition of Industrial Technology.

The Packaging program prepares students for careers as technical managers in the field of packaging and related technologies. The program emphasizes an understanding of the technologies utilized in manufacturing and other industrial processes and compliments this technical understanding with practice using the design and engineering skills necessary in the modern packaging work environment.

6.2.3 Program Acceptance: Each program of study shall be understood and accepted by appropriate individuals and representative groups within the internal university community and the external business and industrial community.

The Packaging program has a positive working relationship with many other departments and colleges in the University, as well as with many companies in the Terre Haute area.

The program utilizes the College of Arts and Sciences for physics, mathematics, chemistry, and economics; the College of Business for accounting, and business management; the College of Health and Human Performance for safety management; Department of Electronics, Computer and Mechanical Engineering Technology for DC fundamentals, automation, fluid power and

computer aided design classes.

Our graduates are employed by local companies as well as nationally known companies. Many companies continue to develop relationships with our program by making financial or equipment donations. Often, alumni are invited guest speakers in our classes. Example of these companies include the following:

Temple Inland
Tredegar, Inc.
Aisin Brake
SONY - Digital Audio Disc Corporation
Eli Lilly
Allison

6.2.4 Program Goals: Each program of study shall have: (1) clearly written short and long range goals and objectives, which are consistent with the program mission statements; and (2) plans for achieving them.

The Packaging program places an emphasis on each student developing an understanding of the basic technologies utilized in the packaging industry and blends this understanding with design, engineering and managerial skills necessary for success in today's work environment.

Short-range goals:

a. Develop a plan to recruit new students into the program.

b. Increase the number of industry projects performed in the packaging lab.

c. Review and promote articulation agreements with community colleges,

Long-range goals:

a. Develop new articulation partnerships with more community colleges.

b. Update and enhance distance offerings of hands-on laboratory courses.

c. Employ a second faculty member in packaging.

The short-range goals and long-range goals will be pursued using the following techniques:

Short-range goals:

a. Recruiting plans will be developed in cooperation with university admissions, the department, and the COT Associate Dean's office.

b. Make known to potential industry partners how we can help.

c. Articulation agreements will be reviewed by packaging faculty and the Associate Dean's office to assure that changes due to the new foundational studies program and any other changes at ISU or the partner institution are still meeting the spirit of the agreements.

Long-range goals:

a. As the program is refined, the program faculty will reach out to new community college partners to develop articulation agreements that will allow degree completion for transfer students.

b. Faculty will enlist the help of university information technology personnel to develop new methods of delivering hands-on laboratory courses through distance methods in order to better provide the coursework needed to serve the future needs of technology managers.

c. It will be necessary to significantly increase the number of students in the packaging program to justify the expense of a second faculty member, unless outside funding can be found.

6.3 Program of Study

6.3.1 Program Name: Each program of study and/or program option shall have appropriate titles consistent with the approved ATMAE definition of Industrial Technology.

Packaging

6.3.2 Program Level: The program of study shall lead to the baccalaureate degree, and not less than the junior and senior years of baccalaureate level study shall be offered by the institution seeking accreditation. Appropriate lower division requirements may be offered by the same institution or may be transferred from other institutions such as community colleges and technical institutes.

The Packaging program is a program of study that leads to a baccalaureate degree. All levels of the program from freshman to senior are offered. Appropriate lower division requirements can be transferred into the program from community colleges and technical institutions.

6.3.3 Program Definition: The program of study may have more than one option, specialization, or concentration; but specific course requirements for each option shall be clearly specified, and the requirements for all program options shall meet or exceed ATMAE standards.

The program of study has no specific requirement for a minor or a concentration, but those options are encouraged.

6.3.4 Program Emphasis: Primary emphasis in the program of study shall reflect the current technology and management of industry.

The primary emphasis of the Packaging program reflects the current technology and management of the packaging industry. This is evidenced in the laboratory exercises and teaching methodologies. The faculty, through professional organizations, such as the Institute of Packaging Professionals and the International Safe Transit Association, remains cognizant of current issues and practices in modern technologies and management techniques.

6.3.5 Foundation Requirements: Programs shall be a minimum of 120 semester hours (or equivalent) and must meet the minimum foundation requirements shown in Table 6.1. Programs may exceed the maximum foundation requirements specified in each area, but appropriate justification shall be provided for each program and/or program option that exceeds the maximum limits. A specific list of courses and credit hours that are being counted toward each category shall be included in the Self-Study Report.

Indiana State University requires all students who expect to graduate to complete a minimum of 124 semester hours

Table 6.1 B. S. Degree in **Packaging**

Course Name	**Course #**	**ISU REQ.**	**ATMAE REQ.**
General Education		**35-44**	**18-36**
English Composition	ENG 101 & 105 or ENG 107	3 - 6	
Technical Writing	ENG 305 T	3	
Communication	COM 101	3	
Physical Education	PE 101 & 101 L	2	
Social/Behavioral Studies	Approved List	6	
Literary/Arts/Philosophical Studies	Approved List	6	
Historical Studies	Approved List	3	
Multicultural Studies	Approved List	6	
Foreign Language	H.S. credit or Approved List	0 - 6	
General Education Capstone	Approved List	3	
Mathematics		**6**	**6 - 18**
College Algebra & Trig	MATH 115	3	
Information Technology Literacy	TMGT 195	3	
Physical Sciences		**8**	**6 - 18**
Physics	PHYS 105	3	
Physics Lab	PHYS 105 L	1	
Chemistry	CHEM 100	3	
Chemistry Lab	CHEM 100 L	1	
Or Physics	PHYS 106		
Physics Lab	PHYS 106 L		
Management /Professional		**21**	**12 - 24**
Introduction to Mfg Technology	TMGT 131	2	
Professional Internship	TMGT 351	3	
Workplace Law for the Tech Mgr	TMGT 429	3	
Senior Seminar	TMGT 430	1	
Production Planning & Control	TMGT 471	3	
Quality Control of Industrial Products	TMGT 473	3	
Industrial Organizations & Functions	TMGT 478	3	
Industrial Supervision	TMGT 492	3	
Technical		**36**	**24 – 36**
Introduction to Technical Graphics	MET 103	3	
Fluid Power Technology	MET 329	3	
Power Systems	MET 333	3	
Fundamentals of Machine Tool Proc	MFG 370	3	
Or Mfg Processes & Materials	MFG 371		
Or Plastics Technology	MFG 372		
Intro to Packaging Design	PKG 180	3	
Packaging Matls & Testing I	PKG 280	3	
Packaging Matls & Testing II	PKG 380	3	
Environmental Issues of Packaging	PKG 381	3	
Package Development and Analysis	PKG 482	3	
Distribution Pkg Des & Testing	PKG 484	3	
Packaging Machinery Systems	PKG 486	3	
Packaging Industry Projects	PKG 489	3	

Electives		**9 - 18**	**0 – 18**
Grand Total		124	120

6.3.6 Course Sequencing: There shall be evidence of appropriate sequencing of course work in each program of study to ensure that advanced level courses build upon concepts covered in beginning level course work.

The course number system indicates when the student should take the course. Courses that have a number with the first digit of one are freshman level courses. Courses with a first digit of two are sophomore level courses, etc. Faculty expect that concepts from lower division courses are understood by students. The following suggested course sequencing sheet is provided to students in the program. Advisors emphasize to students the importance of taking courses in the appropriate order.

Table 6.2 B. S. Degree in **Packaging**

FALL		SPRING	
Semester I		Semester II	
ENG 101	3	ENG 105	3
COMM 101	3	CHEM 100 & 100L	4
MATH 115	3	PKG 180	3
PE 101 & L	2	SBS:F	3
MET 103	3	TMGT 131	2
TMGT 195	3		
	17 hrs		15 hrs
Semester III		Semester IV	
Foreign Lang 101	3	Foreign Language 102	3
PKG 280	3	HS	3
MCS:USD	3	MFG 370 or 371 or 372	3
Physics 105 & 105 L	4	LAPS:F	3
SBS:E	3	Elective	3
	16 hrs		15 hrs
Semester V		Semester VI	
ENG 305T	3	LAPS:E	3
PKG 381	3	TMGT 351	3
MCS:IC	3	PKG 380	3
MET 329	3	MET 333	3
Elective	3	Elective	3
	15 hrs		15 hrs
Semester VII		Semester VIII	
GEN ED Capstone	3	TMGT 492	3
PKG 482	3	PKG 486	3
PKG 484	3	PKG 489	3
TMGT 471	3	TMGT 429	3
TMGT 473	3	TMGT 478	3
TMGT 430	1		
	16 hrs		15 hrs

Table 6.3 B. S. Degree in **Packaging transfer with A.A.S.**

FALL		SPRING	
Semester V		Semester VI	
ENG 305T	3	LAPS:E	3
PKG 381	3	TMGT 351	3
MCS:IC	3	PKG 380	3
MET 329	3	MET 333	3
PKG 280	3	PKG 180	3
	15 hrs		15 hrs
Semester VII		Semester VIII	
GEN ED Capstone	3	TMGT 492	3
PKG 482	3	PKG 486	3
PKG 484	3	PKG 489	3
TMGT 471	3	TMGT 429	3
TMGT 473	3	TMGT 478	3
TMGT 430	1		
	16 hrs		15 hrs

Table 6.4 B. S. Degree in **Packaging transfer with A.S.**

FALL		SPRING	
Semester V		Semester VI	
ENG 305T	3	LAPS:E	3
PKG 381	3	TMGT 351	3
MCS:IC	3	PKG 380	3
MET 329	3	MET 333	3
PKG 280	3	PKG 180	3
	15 hrs		15 hrs
Semester VII		Semester VIII	
GEN ED Capstone	3	TMGT 492	3
PKG 482	3	PKG 486	3
PKG 484	3	PKG 489	3
TMGT 471	3	TMGT 429	3
TMGT 473	3	TMGT 478	3
TMGT 430	1		
	16 hrs		15 hrs

6.3.7 Application of Mathematics and Science: Appropriate applications of the principles of mathematics and science shall be evident in technical and management course work.

MFG 370: Apply mathematics to determine metal removal rates, power requirements, feeds, speeds, depth of cut, tool angles, measurements and tolerances.
MFG 371: Apply mathematics and science when determining stress-strain

calculations, chemistry of metals, metallurgy, bending, forming, and heat treatment.
MFG 372: Apply mathematics and science when determining weight/volume calculations, understanding polymerization and heat transfer.
TMGT 471: Mathematical computations are used to determine schedules and line balancing requirements.
TMGT 473: Requires application of statistical sampling techniques.
TMGT 478: Applications of mathematics and science as necessary for implementation of processes required to complete projects in the capstone course.
MET 103: Principles of mathematics and science are applied.

6.3.8 **Computer Applications: The program of study shall include instruction on computer application software, and the use of computers for information retrieval and problem solving.**

The program of study includes instruction on computer application software, and the use of computers for information retrieval and problem solving. The following are examples:

PKG 180: Computers are used in designing packaging, by using AutoCAD, ArtiosCad, and ProEngineer software.
MET 103: Computer aided design fundamentals
TMGT 195: Intro to Computer applications. Satisfies the University requirement for IT Literacy. Must be taken in the freshman year, prior to receiving 32 credit hours.

MFG 371: NC and CNC programming oxy-fuel/plasma cutter
TMGT 471: Use of production scheduling applications
TMGT 478: Computerized GANT charts for planning and scheduling; computerized plant layouts; computer generated forms; computer generated drawings; electronically distributed content information.

6.3.9 Communications: **Oral presentations and technical report writing shall be evident in course requirements.**

PKG 180: Students are required to write reports on design projects throughout the semester, and make class presentations.

PKG 280: Students make presentations to the class on several assignments and designs developed during the course.

PKG 380: Students make presentations to the class on several assignments and designs developed during the course.

PKG 381: Students are required to research several topics throughout the course and report to the class their findings in formal written reports. Since this is now an internet course, students are required to critique each others' work on each assignment.

PKG 482: There is an emphasis on using the package as a communication tool to reach consumers. Students do exercises requiring evaluation and critique of package copy and graphics. Students report orally and in writing to the class. For industry projects, the students report orally and in writing also to the industry partners.

PKG 484: Students prepare written reports of recommendations and test results. These are presented along with an oral summary to the class and industry representatives. Students are expected to access current packaging journals and magazines, find articles on packaging materials or test equipment, and write a summary on each article. Students also write reports on lab projects throughout the semester.

PKG 486: Students prepare formal written reports on layout plans, machine requirements, and costs. These are also presented to the class orally as mock formal business presentations to a board of directors of a company.

PKG 489: Students prepare written technical reports of their research and present these orally to the class and/or the client company.

6.3.10 Industrial Experiences: **Each major program shall include appropriate industrial experiences such as industrial tours, work-study options and cooperative education, or senior seminars focusing on problem-solving activities related to industrial situations. The industrial experiences shall be designed to provide an understanding of the industrial environment and what industry expects of students upon employment.**

All students in this program are required to enroll in at least one semester of TMGT 351 Internship/Cooperative Industrial Practice to gain real world experience in an industrial setting.

In all packaging courses, when possible, students participate in tours of packaging industries scheduled at various times during the semester. Students are also encouraged to attend Central Indiana Institute of Packaging Professional meetings and interact with industry professionals.

PKG 489: This course is designed to specifically accommodate senior students doing projects with industry partners or clients.

6.3.11 Competency Identification: **Competencies shall be identified for each major program, including all available options, which are relevant to the employment opportunities available to graduates.**

Competencies for graduates of the Packaging program include:

1. Perform a variety of technical activities the student is likely to manage.

2. Communicate effectively in the packaging production/engineering/management environment.

3. Solve packaging problems or control the environment.

4. Make packaging related decisions.

5. Allocate resources effectively.

6. Operate well in team environments, whether as leader or team member.

7. Operate well in an unsupervised environment.

8. Integrate ethics in all dealings.

Specific objectives required in the Packaging Technology degree program are listed in the course syllabi.

6.3.12 Competency Validation: **Validation of major program outcomes/student competencies shall be an on-going process and shall be accomplished through a combination of external experts, an industrial advisory committee(s), and follow-up studies of program graduates. Documentation of this validation shall be provided in the Self-Study Report.**

The Packaging program receives validation from the Packaging Advisory Committee, and from the Institute of Packaging Professionals. The advisory committee meets at least once each year to discuss the state of the program and what needs to be changed to meet the needs of the packaging industry. Members are asked to give input regarding the overall program requirements and suggestions they have for strengthening the program and producing more viable graduates. This information is combined with feedback from employers and graduates to formulate revisions to the program.
Informal feedback from employers and former students are also used for program improvement.

Placement of graduates in packaging jobs is very high. Almost all graduates are placed within three months of graduation in good positions in their field of study. Those graduates typically have been afforded upward mobility over time in the packaging industry, though some choose to move into management in other areas.

6.3.13 Program Development, Revision, and Evaluation: **Major program development, revision, and evaluation shall involve currently enrolled students, individuals responsible for instruction, program graduates, and representative employers.**

The Packaging program was revised in 2007. At that time, PKG 180, Introduction to Packaging Design was added as a required course and MET 203 was dropped from the program. Other packaging courses were revised and renamed with the PKG prefix to reflect changes in the industry. These changes reflected the recommendations of the Packaging Advisory Committee, in response to a survey of past graduates and industry professionals.

6.3.14 Transfer Course Work: **Institution and/or department policies shall be used to evaluate course work transferred from other institutions. All programs/options, including those with a significant amount of transfer course work, must meet the minimum credit hour foundation course requirements (Tables 5.1 and 6.1) in each category.**

University policies regarding transfer credit are outlined in the Undergraduate Catalog. The Department of Technology Management accepts transfer course work from accredited institutions of higher education. Courses must be college level with a letter grade of C or better. Credit is transferred on a course-by-course basis by faculty evaluation. The Dean's office approves faculty recommendations and applicability of transfer credit. ISU faculty work with the faculty from the lower division schools to ensure that courses/degrees transferred

into ISU contain the appropriate content and are taught at the appropriate level utilizing appropriate methods to be valid in ISU programs.

Articulation agreements are in place for Ivy Tech Community College that ensure learners meet the minimum requirements of the University and ATMAE.

6.3.15 Upper Division Course Work: **Students shall successfully complete a minimum of 15 semester hours of junior or senior level major courses at the institution seeking program accreditation.**

All students are required to complete a minimum of 50 semester hours of course work at the junior/senior level for any Bachelor of Science degree conferred at the university. A minimum of 30 semester hours must be completed as residence credits from Indiana State University.

6.3.16 Program Publicity - Adequate and Accurate Public Disclosure: **Institutions shall broadly and accurately publicize, particularly to prospective students: (a) Industrial Technology program goals and objectives, (b) preadmission testing or evaluation requirements and standards, (c) assessment measures used to advance students through the program(s), (d) educational achievement rates of graduates, and (e) fees and other charges.**

The TM Department distributes brochures and information sheets to prospective students through direct mail, trade show booths, high school presentations, community college counselors, and one-on-one promotion. All prospective students who contact the TM department by phone, mail, or e-mail are sent a packet of information with a personal letter of invitation to visit and ask questions. Information about points (b) – (e) are found in the University Undergraduate Catalog.

University Effort. A major part of the University recruitment program is organized and administered by the Office of Admissions. Specific goals of this office include:

a. Present information about the University in a manner that will assist prospective students and their parents in making appropriate choices as to which college or university to attend.

b. Develop techniques and programs that will motivate students to seek additional information about the University.

c. Organize and conduct activities that will present the University in the most favorable way to prospective students and feeder school personnel.

d. Organize and conduct activities that will increase the number of new students enrolling at the University.

e. Work cooperatively with other University staff members to ensure maximum efficiency of the recruitment and application processing activities.

The Office of Admissions meets these goals through the following activities.

a. Direct mailing to prospective students

b. On-campus days, interviews, and campus tours

c. New Student Orientation

d. Freshmen follow-up

e. College fairs

f. Student-parent receptions

g. High school visits

h. Special alumni events

i. Phone call program

j. Distribution of posters

College Activities. One of the major functions of the Office of the Associate Dean in the College of Technology is to coordinate undergraduate recruitment activities for the CoT. The Associate Dean oversees the Technology Student Services Center that has the responsibility to conduct recruiting activities. Some of the regular recruitment efforts include:

a. School representative to the Office of Admissions

b. Development and dissemination of brochures

c. Coordinate recruiting activities such Tech Trek, Major's Fair, College Tech Prep, and Hands-on-High Tech

d. Development of all special recruitment programs such as Introduction Programs, College of Technology Career Fairs, etc.

Department Activities: The Department has faculty members who visit high schools for recruitment purposes. Faculty members also meet prospective students and parents when they visit campus. This usually includes tours of the facilities, program information, and initial advisement. The Department has also completed several mailings to counselors at the high school level, across the State, to inform them of the opportunities at Indiana State University. The Department also takes an active role in all school-level recruitment activities such as those listed above. Department faculty are also involved in outreach activities such as the Explorer Program that expose young students to skills and careers in the manufacturing profession.

The institution, the College of Technology, the TMGT Department and even the Technology Student Services Center all have web sites to advertise much of the Information listed in this standard.

6.3.17 Legal Authorization: **Only institutions legally authorized under applicable state law to provide degree programs beyond the secondary level and that are recognized by the appropriate regional accrediting agency are considered for accreditation.**

The Packaging program at Indiana State University is approved by the Indiana Department of Higher Education as a program of study within the university. Indiana State University was chartered by the State of Indiana as an institution of higher learning in 1865, and has been operating under the legal authorization of the State continuously since that time.

6.4 Instruction

6.4.1 Course Syllabi: **Course Syllabi which clearly describe appropriate course objectives, content, references utilized, student activities, evaluation criteria, and a range of examples of student's graded work shall be available for each course.**

Course Syllabi which clearly describe appropriate course objectives, content, references utilized, student activities, evaluation criteria are provided to each student at the beginning of the course. A range of examples of student's graded work, course syllabi, schedules, study guides from each course will be on display in the ATMAE display room during the on-site visit.

6.4.2 Reference Materials: **Appropriate reference books, library materials such as periodicals, audio-visual materials, and computer application software (when appropriate) shall be utilized for each course or series of courses to supplement textbooks or course packs.**

The Indiana State University Cunningham Memorial Library houses a fine collection of reference materials, and provides access to materials in other libraries, used by all the courses in the Packaging program. Proprietary software, such as ArtiosCAD, ValView, Q-Test, and CAPE may be accessed on the computers in the packaging lab.

6.4.3 Program Balance: **Appropriate laboratory activity shall be included in the program(s) and a reasonable balance must be maintained in course work between the practical application of "how" and the conceptual emphasis of "why."**

All Packaging courses are designed to provide a balance of the why and how of the field.

The following classes contain about 50% lecture/demonstration, 50% hands-on lab activity: PKG 180, PKG 482, PKG 484.

The following classes contain about 80% lecture/demonstration, 20% hands-on lab activity: PKG 280, PKG 380, and PKG 486.

PKG 381 is conducted primarily as lecture and demonstration, with outside activities involving research work.

PKG 489 is nearly 100% lab and research activities involving specific industry projects. While TMGT 351 is 100% immersion in actual work in industry.

6.4.4 Problem-Solving Activities: **Emphasis in instruction shall be appropriately focused on problem-solving activities which reflect contemporary industrial situations.**

PKG 180: This class requires students to design packages that will survive standard tests, such as drop, and compression while performing the basic functions of protecting and containing the contents.

PKG 280: This class analyzes the properties of various paper-based packaging materials to determine their characteristics and properly identify the materials being testing. The PKG 280 class also learns to fabricate paper, paperboard, and corrugated paperboard packages.

PKG 380: This class analyzes the properties of various plastic, metal, and glass packaging materials to determine their characteristics and appropriate uses.

PKG 381: This class is assigned to evaluate the environmental concerns about packaging and recommend sound, environmentally friendly, alternatives.

PKG 482: This class develops complete package designs for consumer and pharmaceutical products and presents the findings to the industry partner.

PKG 484: This class involves individuals and teams learning about the physics and characteristics of proper packaging for distribution while working on industry projects to come up with solutions to the assigned industry problems. Normally, existing packaging is tested and new designs are fabricated and tested for effectiveness and economy.

PKG 486: This class is divided into work groups to develop a workable packaging line for a given product and justify their solutions through written and oral presentations.

PKG 489: This class involves individuals and working on industry projects to come up with solutions to the assigned industry problems. Existing packaging is tested and new designs are fabricated and tested for effectiveness and economy.

6.4.5 Motivation of Students: **Effective motivation of students shall be evident.**

Using real industry projects in classes adds the relevance students yearn for in their program of study. The experiences gained from these projects, coupled with the interaction and networking with industry professionals provides a taste of professional life. Just as in industry, teams are used to solve problems, with peer evaluations to motivate each student to perform optimally.

Most students are involved in the Institute of Packaging Professionals student organization. This helps maintain excitement about packaging and ties the students to the Central Indiana Institute of Packaging Professionals chapter, where students can attend meetings and learn first-hand from industry professionals.

6.4.6 Supervision of Instruction: **Appropriate supervision of instruction shall be evident throughout the program.**

The Department of Technology Management has a Faculty member with a ½ time administrative appointment to be Department Chair. One of the Chair's duties is to supervise instruction. Each faculty member, in conjunction with colleagues and the Chair, develops yearly and long-range goals. As per the

Departmental Faculty Evaluation plan, faculty are evaluated by their colleagues and the chair. Evidence and documentation of teaching performance is by peer and chair evaluation of teaching, student assessment of teaching, and other means as needed. The university has several ongoing initiatives to maintain and improve quality of instruction. Many faculty participate in the institutes and workshops that are conducted throughout the year.

6.5 Faculty

6.5.1 Full-Time Faculty: **Each major program option shall have an adequate number of appropriately qualified full-time faculty. Program faculty qualifications shall include emphasis upon extent, recency, and pertinence of: (a) academic preparation, (b) industrial professional experience (such as technical supervision or management), (c) applied industrial experience (such as technical applications), (d) membership and participation in appropriate Industrial Technology professional organizations, and (e) scholarly activities.**

It is difficult to break down the faculty by program because faculty often cross over and teach in other programs within the department and in other departments. Additionally, many courses within and external to the department are of a service nature and not focused on one major. The Packaging program has one tenured, full-time faculty dedicated to it at this time. The Packaging faculty member has: (a) an undergraduate degree in packaging; (b) and (c) worked for nearly 19 years in industry in a variety of positions before beginning teaching; (d) is a member of the Institute of Packaging Professionals with lifetime status as a Certified Packaging Professional, is a member of the International Safe Transit Association with lifetime status as a Certified Packaging Laboratory Professional at the highest level, and is a member of ASTM and ATMAE; and (e) continually conducts scholarly activities in the field of packaging.

6.5.2 Minimum Faculty Qualifications: **The minimum academic qualifications for a tenure track faculty member (except in unusual circumstances which must be individually justified) shall be a bachelor's and master's degree in a discipline closely related to the faculty member's instructional assignments.**

All full-time faculty members in the TM Department have at least a master's degree closely related to their usual teaching assignment. The packaging faculty person holds a B.S. in Packaging Technology, an M.S. in Industrial Professional Technology, and a Ph.D. in Curriculum and Instruction.

6.5.3 Academic Preparation of Faculty: **A minimum of fifty percent of the regular full-time faculty members assigned to teach in the major program(s) shall have an earned doctorate (exceptions to this standard will be granted only for unique programs such as Marine Transportation). If more than one major program exists at an institution, this standard will apply to all regular full-time faculty assigned to teach major programs in Industrial Technology at the institution. Exceptions may be granted to this standard if the institution has a program in place that will bring the institution into compliance within a reasonable time.**

The Packaging faculty person has an earned Ph.D. degree.

6.5.4 Selection and Appointment Policies: **Policies and procedures utilized in the selection and appointment of regular faculty shall be clearly specified and shall be conducive to the maintenance of high quality instruction.**

The department adheres to University and COT selection and appointment policies. Appointment to the Indiana State University faculty is by the Indiana State University Board of Trustees on the recommendation of the President of the University. The usual procedures for selecting candidates for faculty positions is 1) determine a need, 2) develop a staffing plan, 3) get approval from Academic Affairs, 4) advertise the position, 5) interview potential candidates, and 6) hire an individual.

6.5.5 Tenure and Reappointment Policies: **Faculty tenure and reappointment policies and procedures shall be comparable to other professional program areas in the institution. Requirements in the areas of teaching, service, and scholarly activity shall be clearly specified for faculty in Industrial Technology.**

The department adheres to University and COT Promotions and Tenure procedures. Faculty tenure and reappointment policies and procedures in the Technology Management Department are comparable to other professional program areas in the institution. Requirements for teaching, service and scholarly activity are clearly specified for all COT faculty and can be reviewed in the COT Promotion and Tenure Standards document.

6.5.6 Faculty Loads: **Faculty teaching, advising, and service loads shall be comparable to the faculty in other professional program areas at the institution. Consideration shall be given in faculty teaching load assignments to high contact hours resulting from laboratory teaching assignments.**

Packaging Faculty loads are typical for Industrial Technology programs in comparable Universities. It is typical for Departmental faculty to teach a 12-hour load (four 3-credit courses). A 9-hour load is often granted when one or more courses are taught both on campus and via distance.

6.6 Students

6.6.1 Admission and Retention Standards: **Admission and retention standards shall be used to ensure that students enrolled are of high quality. These standards shall compare favorably with the institutional standards. Sources of information may include admission test scores, secondary school rankings, grade point averages, course syllabi, course examinations, written assignments, and oral presentations.**

The Department follows University admission and retention standards. Indiana State University, in affirming its commitment to excellence, recognizes the value of a student population reflecting academic achievement, cultural diversity, and special talent. The University's admissions policy allows for the individual consideration of each applicant, and helps it service a student population with these characteristics.

The primary criterion for admission is evidence that a candidate is prepared to

succeed in a degree program, given the University's limited resources for special assistance.

Admission standards are stated in terms of traditional school and college grading systems. For applicants whose records include either a high proportion of non-traditional grades, or a subject pattern which departs markedly from that normally associated with university study, additional evidence of academic potential in support of their applications, such as entrance examinations, interviews, and letters of recommendation, may be requested. The admission of applicants who are older than the traditional college age will be determined individually with special attention given to employment experience and motivation.

Individuals may seek exceptions to any of the requirements by petitioning the Admissions Committee to consider additional factors that may indicate college potential. A limited number of students may be admitted on condition that they agree to follow a prescribed course of study and advisement.

6.6.2 Scholastic Success of Students: **Students in Industrial Technology shall have scholastic success comparable to those in other curricula in the institution. Grading practices in Industrial Technology courses shall be comparable to other departments and/or programs in the institution. Evidence shall be presented to indicate the scholastic achievement level of Industrial Technology students in both basic studies and major course work.**

Students graduating from the College of Technology, and particularly the TM Department, have scholastic success comparable to those in other curricula in the institution. Scholastic achievement of students is comparable to the University Average.

6.6.3 Placement of Graduates: **The initial placement, job titles, job descriptions, and salaries of graduates shall be consistent with the program(s) goals and objectives. The advancement of graduates within organizations shall be tracked to ensure advancement to positions of increasing responsibility. Industry's reaction to graduates as employees must be favorable. Follow-up studies of graduates shall be conducted every two to five years. Summary statistics relating to follow-up studies of graduates shall be made available to prospective students. These statistics shall include placement rates as well as salary levels of program graduates.**

The Packaging program typically has better than average placement rates and starting salaries when compared to the University as a whole. Recent starting salaries have ranged from $38,000 to over $60,000 according to verbal self-reporting of graduates.

6.6.4 Deleted

6.6.5 Student Evaluation of Program(s): **Evaluations of the Industrial Technology program(s) shall be made by its graduates on a regular basis (two to five years). Their reactions and recommendations shall be considered in program revisions.**

Current students complete a course/instructor evaluation at the end of the semester for each course in which they are enrolled. Former graduates are surveyed every 5 years.

6.6.6 Student Enrollment: **Enrollment shall be adequate in each program area to operate the program(s) efficiently and effectively. The level of available resources shall be considered as a constraint on the maximum number of qualified students to be admitted to the program(s). Enrollment shall be tracked, and factors affecting enrollment patterns shall be identified and analyzed. Enrollment projections shall be made which relate closely to short and long-range goals and resource needs.**

Student enrollments and trends are tracked by the college and the university. Knowledge gained from analysis of trends is incorporated into budget, scheduling, and staffing decisions. Enrollment factors are discussed and used in decision making in Departmental, COT, and Chairs Advisory Committee meetings.

6.6.7 Advisory and Counseling Services: **Adequate and timely advising and counseling services shall be available for students.**

All tenured faculty members advise students, with some help from tenure-track and full-time temporary faculty. Students receive both scheduling and developmental advice, as needed.

6.6.8 Ethical Practices: **Ethical practices shall be fostered, including equitable student tuition refunds and nondiscriminatory practices in admissions and employment.**

Indiana State University, the College of Technology, and the Department of Technology Management are committed to non-discriminatory equal access policies. Equality for all students and faculty, and an embrace of diversity, are hallmarks of the campus.

6.7 Administration

6.7.1 Program Administration: **Programs in Industrial Technology are expected to have an identifiable, qualified individual with direct responsibility for program coordination and curriculum development. This individual should be a full-time employee of the institution.**

The coordinator of the Packaging program is also the primary faculty for the Packaging program. The coordinator position is conferred by faculty consensus upon the faculty member best capable of providing leadership for the program. The faculty of the department have the primary authority and responsibility for curriculum development.

6.7.2 Administrative Leadership: **Individuals assigned to administer Industrial Technology programs must demonstrate effective leadership and satisfactory support for Industrial Technology.**

The Department chair serves as the head coach and cheerleader for the department. The chair is the spokesperson for the department and is the primary liaison between the department and the rest of the University community. The

chair is responsible for reporting and record keeping requirements. For most activities, such as curriculum decisions, faculty evaluations, and program administration, the chair as one entity and the rest of the departmental faculty as another share equal authority. In these matters, the chair is required to seek faculty input. The chair has discretionary authority concerning only budgeting and scheduling.

6.7.3 Administrative Support: **There must be appropriate support for Industrial Technology from the personnel holding leadership positions in the departments and colleges where Industrial Technology is administratively located.**

Three programs housed in the TM department are Industrial Technology programs. All TM faculty, the chair, associate dean and dean are committed to proper and successful Industrial Technology programs.

6.8 Facilities and Equipment

6.8.1 Adequacy of Facilities and Equipment: **Physical facilities and equipment, which are suitable to serve the goals and objectives of the program(s), shall be available for each program option. Where facilities and equipment appear to be minimal to support a quality program(s), comparisons with support levels for other relevant programs at the institution will be made by the visiting team.**

The lab facilities for the Packaging Technology program are high quality and current with the industry. Within the past six years, the Packaging program has received approximately $300,000 worth of equipment and software donations from industry partners. Further industry donations will be sought for future additional equipment and funding needs that arise.

6.8.2 Support for Facilities and Equipment: **Facility and equipment needs shall be reflected in the long range goals and objectives for the program(s), and sources of potential funding shall be identified.**

Since the yearly portion of the ISU equipment and maintenance budgets for the Packaging program has been cut along with that of all other programs, it has been necessary to obtain alternate funding and donations for equipment, software, and maintenance needs. Fortunately, the packaging industry and packaging professional groups have been very supportive and generous to the Packaging program. Additional funding also comes from consulting activities conducted through the Indiana Packaging R & D Center that operates out of the Packaging lab.

6.8.3 Appropriateness of Equipment: **Equipment shall be appropriate to reflect contemporary industry.**

The equipment in the Packaging Lab is very serviceable, and is the same or very similar to equipment used in the packaging industry.

6.9 Computer Systems

6.9.1 Availability of Computer Systems: **Appropriate computer systems shall be available to students and faculty to cover appropriate functions**

and applications in each program area. These systems may be on or off-site and centralized or decentralized as long as the systems are accessible to students and faculty by means of remote terminals and/or input-output devices.

The COT and the University have numerous computer labs. Some labs are open 24 hours, others for extended periods at night and on the weekends. The University computer system is accessible from off-campus locations via dial-in procedure. Additionally, many students utilize computers and the internet access available in their homes, places of employment, and/or local libraries (city and other public institutions). All campus buildings, including COT buildings have wireless internet connection available for students to use with personal notebook computers. Every campus dormitory room has a connection to the campus backbone which allows access to the internet and the campus "image" which contains universally used programs such as MS Office, Internet Explorer, GroupWise Mail, SPSS, and many other programs.

6.9.2 Utilization of Computer Systems: **Evidence shall be available which indicates students and faculty are making adequate and appropriate use of computer systems.**

Most courses in the Packaging program, as with all programs in the College of Technology, require use of computers to complete assignments. The use of computers is inherent in many courses, e.g. CAD, CAM, CIM, etc. Computers are used during scheduled and open lab hours. Most courses have writing elements, and presentations that require assignments to be word processed and/or put into Power Point. Some also require the use of Blackboard internet courseware, e-mail, or searches conducted on internet sites.

6.10 Financial Resources

6.10.1 Financial Support: **The budget for the Industrial Technology program(s) shall be adequate to support program objectives. When judging sufficiency, the visiting team may wish to make comparisons with the support levels given to other professional programs at the institution.**

In recent years, funds for all purposes have been tighter. The budget tightening has been across the board so as not to be unfair to individual programs.

6.10.2 External Financial Support: **There shall be evidence of external support for the program(s) in Industrial Technology. However, this external support shall be treated as supplementary support and be used to achieve and maintain a high level of excellence. This external support shall not be used to displace funding support normally provided by the institution.**

External financial support is regularly sought from industry partners and from individual supporters to finance activities and purchases beyond those required for normal operations.

6.11 Library Services

6.11.1 Library Resources: **The administrative unit containing the Industrial Technology program(s) and/or the institutional library shall maintain a collection of Industrial Technology literature and reference materials**

adequate to meet the curriculum and research needs of students and faculty.

Library resources are quite adequate. The COT has a library budget comparable to other units on campus. The library responds readily to requests for books and periodicals needed for COT programs. Adequate books, periodicals, and computer-based materials are available for reference and for circulation. A growing number of internet and CD resources and search aids are available on-line through the Cunningham Memorial website.

6.11.2 Utilization of Library Resources: **Evidence shall be available which indicates that students and faculty are making adequate and appropriate use of library resources.**

Faculty and students utilize library resources on a routine basis. Students are making adequate and appropriate use of the Library. Most courses include technical reports, term papers, and other class presentations where the Library houses the necessary information.

Evidence of these requirements may be found in the syllabi found in the course resource notebooks.

The faculty have identified no accurate techniques to measure the extent to which faculty are making adequate and appropriate use of library resources.

6.12 Support Personnel

Support Personnel: Personnel such as teaching assistants, student work-study assistants, secretaries and service technicians shall be adequate to support program objectives.

The TM department has one full-time secretary, several graduate assistants, and student workers. Student workers are used in support of labs. Graduate assistants are used to assist faculty with labwork, research, and teaching. The COT has a technician for mechanical issues and a technician for computer issues.

6.13 Placement Services

6.13.1 Placement Services: **Appropriate services shall be available to assist with the placement of program graduates. Placement of graduates shall be tracked and the effectiveness of the services shall be evaluated by the administrative unit containing the Industrial Technology program(s).**

The University has placement service available, through the ISU Career Center, to all students and recent graduates. College of Technology graduates consistently lead the University in placement rates and starting salaries. Placement of graduates is tracked by the Career Center. College of Technology faculty/programs work closely with the Career Center to help students pursue their career goals.

6.13.2 Cooperative Education: **If cooperative education is either a required or an elective part of the program, then appropriate services shall be provided to assist with the placement and supervision of cooperative education students.**

Indiana State University has an excellent cooperative education program coordinated by the ISU Career Center. Cooperative education is required in the Packaging Technology degree program using the TMGT 351 course.

6.14 Industrial Advisory Committee(s)

6.14.1 Program Advisory Committee(s): **An industrial advisory committee shall assist in the validation of program content. If more than one major program or program option is available, then appropriately qualified industrial representatives shall be added to the committee or more than one committee shall be maintained. Evidence shall be presented to indicate the: (a) procedures used in selecting members, (b) length of appointment, (c) organization of the committee, (d) committee responsibilities, (e) frequency of meetings, and (f) methods of conducting business.**

The bylaws of the Packaging Technology Advisory Committee elaborate on items (a) – (f).

6.14.2 Advisory Committee Meetings: **The industrial advisory committee(s) shall meet at least once each year, and appropriate minutes shall be kept of these meetings showing agenda items, actions taken, and recommendations made.**

The Packaging Advisory Committee meets at least once each year.

6.15 Educational Innovation

6.15.1 Educational Innovation: **There shall be evidence that innovation furthering program objectives is being carried out in the administrative unit housing the Industrial Technology program. This includes developing and testing new learning approaches and technologies and disseminating the results.**

New approaches are being tried including distance learning through the internet, summer workshops, and working cooperatively with industry partners on projects. Currently, three required packaging courses, and several related required courses are available as semester-based internet courses using Blackboard courseware. Some non-traditional students are enrolled in the program and taking all courses via the internet. Summer workshops have been offered to allow non-traditional students to take traditional courses in a compressed format. Students regularly work with various companies on industry projects, benefiting both students and the companies that participate.

6.16 Assessment

Assessment Plan and Integration: An assessment plan shall be comprised of, but not limited to, the following for each program: (1) program mission statement, (2) program outcomes/student competencies, (3) evidence that the program

incorporates these outcomes/student competencies, (4) assessment measures used to evaluate student mastery of the student competencies stated, (5) compilation of the results of the assessment measures, and (6) evidence that these results are used to improve the program.

(1) Program Mission Statement

The ISU Packaging program provides hands-on experiences with community and industry partners to foster creativity and ethics in both individual and team situations to prepare students as professionals in the engineering and design of packaging systems.

(2) Program Outcomes/student competencies

Program Outcome # 1: The student will demonstrate mastery of the knowledge and tools of the packaging profession.

Program Outcome # 2: The student will be able to apply technical knowledge in conducting experiments to solve problems.

Program Outcome # 3: The student will use creativity in designs and applications for experiments to resolve problems.

Program Outcome # 4: The student will function in teams to solve problems.

Program Outcome # 5: The student will present research findings in oral and written form.

(3) Evidence that the program incorporates these outcomes/student competencies

COURSE #	A demonstrate mastery of the knowledge and tools of the packaging profession	B apply technical knowledge in conducting experiments to solve problems	C use creativity in designs and applications for experiments to resolve problems	D function in teams to solve problems	E present research findings in oral and written form
PKG 180	Introduced	I	I	I	
MET 103	Practiced	I	I		
PKG 280	I	I			I
PKG 380	P	P			P
PKG 381					P
PKG 482	P	P	P	P	P
PKG 484	P	P	P	P	P
PKG 486	Reinforced	R	R	R	R

PKG 489	R	R	R		R
MFG 370	P	P	P		P
MFG 371	P	P	P		P
TMGT 351	R	R	R	R	R
TMGT 471	P	R	R	R	R
TMGT 473	R	R	P		R
TMGT 478	R	R	R	R	R
TMGT 492		R	R	P	R
TMGT 497			R	R	R

(4) assessment measures used to evaluate student mastery of the student competencies stated

Stakeholder Involvement

Stakeholders: (Rating – 5 implemented, evaluated and at least one cycle of improvement)

1. Students
2. Graduates
3. Employers
4. Other professionals

Primary Stakeholders are involved in identifying/affirming program educational objectives: (Rating – 5 implemented, evaluated and at least one cycle of improvement)

1. Students fill out SIRs for each course
2. Graduates are surveyed
3. Employers are represented through the Advisory Board and internship evaluations
4. Other professionals are represented in the ATMAE accreditation

Primary Stakeholders are involved in periodic evaluation of educational objectives: (Rating – 5 implemented, evaluated and at least one cycle of improvement)

1. Students fill out SIRs for each course
2. Graduates are surveyed periodically
3. Employers are represented through the Advisory Board and internship evaluations
4. Other professionals are represented in the ATMAE accreditation

Sustained partnerships with stakeholders are developed: (Rating – 5 implemented, evaluated and at least one cycle of improvement)

1. The packaging advisory board has been active since 1974
2. The packaging program has been accredited by ATMAE/NAIT for at least 25 years

Program Educational Objectives

Objectives are defined: (Rating 3 – In place and implemented)

9. Perform a variety of technical activities the student is likely to manage.

10. Communicate effectively in the packaging production/engineering/management environment.

11. Solve packaging problems or control the environment.

12. Make packaging related decisions.

13. Allocate resources effectively.

14. Operate well in team environments, whether as leader or team member.

15. Operate well in an unsupervised environment.

16. Integrate ethics in all dealings.

Number of objectives are manageable: (Rating 3 – In place and implemented)
Eight objectives is a very reasonable and manageable number.

Objectives are aligned with department/program mission statement: (Rating 3 – In place and implemented)
These objectives are aligned with the intent of the mission statements

Objectives are periodically assessed to determine achievement: (Rating 2 – Beginning stage of implementation)
Assessment of these objectives has not yet been completed.

Objectives are periodically evaluated for currency: (Rating 2 – Beginning stage of implementation)
While it is believed that all the objectives are current, a formal evaluation has not yet been completed.

(5) compilation of the results of the assessment measures

Student Learning Outcomes

Student learning outcomes are identified: (Rating 3 – In place and implemented)

1. Master knowledge and tools of the technology management profession
2. Apply technical knowledge in conducting experiments to solve problems
3. Use creativity in designs and applications for experiments to resolve problems
4. Function in teams to solve problems
5. Present research findings in oral and written form

Number of outcomes manageable: (Rating 3 – In place and implemented)
Five outcomes is a very reasonable and manageable number.

Outcomes are publicly documented: (Rating 2 – Beginning stage of implementation)
These outcomes will be included in future documentation.

Outcomes are linked to educational objectives: (Rating 3 – In place and implemented)
These outcomes were written to fit well with the educational objectives of this program.

Outcomes are defined by a manageable number of measurable performance indicators (performance criteria): (Rating 2 – Beginning stage of implementation) Measureable performance indicators are being refined.

Measurable Performance Criteria

Student learning outcome 1:
Master knowledge and tools of Packaging profession
1. Student can pass standard exit exam
2. Student can develop a packaging system given a product

Student learning outcome 2:
Apply technical knowledge in conducting experiments to solve problems
1. Scientific method and standard test procedures are used
2. Test plan correct for the situation

Student learning outcome 3:
Use creativity in designs and applications for experiments to resolve problems
1. New ideas are developed
2. Concepts are evaluated

Student learning outcome 4:
Function effectively in teams to solve problems
1. Team produces quality results
2. Team members favorable in evaluation

Student learning outcome 5:
Present research findings in oral and written form
1. Oral skills are clear and effective
2. Written skills are clear and effective

Student Learning Outcomes Aligned With Educational Practices

Desired outcomes are mapped to curricular practices and/or strategic (e.g., courses/teaching methodology, internship): (Rating 2 – Beginning stage of implementation)

Practices/strategies are systematically evaluated using outcomes assessment data: (Rating 1 – Beginning stage of development) The data are not yet available

Where necessary, educational practices are modified based on evaluation of assessment data: (Rating 1 – Beginning stage of development) The data are not yet available

Assessment Processes

Assessment is on-going and systematic at the program level: (Rating 2 – Beginning stage of implementation) The data are not yet available

Multiple methods are used to measure each outcome: (Rating 2 – Beginning stage of implementation) Multiple methods are in use

Both direct and indirect measures of student learning are used to measure outcomes: (Rating 2 – Beginning stage of implementation) Both direct and indirect measures are being used

Assessment processes are reviewed for effectiveness and efficiency: (Rating 2 – Beginning stage of implementation) The data are not yet available for review

When needed, assessment methods are modified based on evaluation processes: (Rating 2 – Beginning stage of implementation) Assessment methods will be modified as evaluation indicates it is necessary

Evaluation

Assessment data are systematically reviewed: (Rating 2 – Beginning stage of implementation) Assessment data are not yet complete

Evaluation of results is done by those who can effect change: (Rating 2 – Beginning stage of implementation) Evaluation of results is done by program leaders

Evaluation of assessment data is linked to curricular practices/strategies: (Rating 2 – Beginning stage of implementation)

Evaluation leads to decision making/action: (Rating 2 – Beginning stage of implementation)

(6) evidence that these results are used to improve the program.

BS in Packaging

Matrix of Program Outcomes and Assessment Methods				
	Exam[i]	Follow-up Survey[ii]	Survey of Graduating Seniors	Portfolio[iii]
#1 Perform a variety of technical activities the student is likely to manage.		X	X	X[iv]
#2 Communicate effectively in the packaging production/engineering/management environment.		X	X	X[v]
#3 Solve packaging problems or control the environment.	X	X	X	
#4 Make packaging related decisions.	X	X	X	
#5 Allocate resources effectively.	X	X	X	
#6 Operate well in team environments, whether as leader or team member.		X	X	
#7 Operate well in an unsupervised environment.		X	X	
#8 Integrate ethics in all dealings.		X	X	

[i] Professional exam to be taken in senior year. The intention is to use the IoPP CPIT exam, the ISTA CPLP exam, and/or the ATMAE exam.

[ii] Follow-up survey of alums and their supervisors. The intent is to do this no later than every 5 years (the period specified by most accrediting associations). Currently, the program is accredited by ATMAE, which requires outcomes assessment.

[iii] The intent is to keep a range of student's graded work (a) of a written report required in the production planning course and (b) of experiential laboratory assignments (when the student is not a transfer student).

[iv] This will be evidenced by the student having completed an internship in a packaging environment.

[v] TMGT 471 Production Planning and Control.