Program Outcomes Assessment

BS in Manufacturing Engineering Technology

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Last Modified: 12/15/2014 07:58:20 AM CST
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General Information (Program Outcomes Assessment)
Standing Requirements

 دائمية معلومات

Mission Statement
BS in manufacturing engineering technology program will prepare graduates with technical leadership skills necessary to enter careers in process and systems design, manufacturing operations, maintenance, technical sales or service functions in a manufacturing enterprise.

Outcomes Library

BS in Adv Manufacturing Mgt Outcome Set

BS in Manufacturing Engineering Technology

Program Objective A: Mastery of knowledge and tools

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Mapping</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLO 1.1: Apply CAD principles</td>
<td>No Mapping</td>
</tr>
<tr>
<td>Students will apply CAD principles.</td>
<td></td>
</tr>
<tr>
<td>SLO 1.2: Plan/execute production</td>
<td>No Mapping</td>
</tr>
<tr>
<td>Students will plan and execute production.</td>
<td></td>
</tr>
<tr>
<td>SLO 1.3: Utilize control systems in automated manufacturing</td>
<td>No Mapping</td>
</tr>
<tr>
<td>Students will utilize control systems in automated manufacturing.</td>
<td></td>
</tr>
<tr>
<td>SLO 1.4: Utilize computers and software for design</td>
<td>No Mapping</td>
</tr>
<tr>
<td>Students will utilize computers and software for design in manufacturing.</td>
<td></td>
</tr>
</tbody>
</table>

Program Objective B: Effective Problem Solving

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Mapping</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLO 2.1: Use scientific methods to solve problems</td>
<td>No Mapping</td>
</tr>
<tr>
<td>Students will use scientific methods to solve problems.</td>
<td></td>
</tr>
<tr>
<td>SLO 2.2: Use management principles to solve problems</td>
<td>No Mapping</td>
</tr>
<tr>
<td>Students will use management principles to solve problems.</td>
<td></td>
</tr>
<tr>
<td>SLO 2.3: Interact with team members</td>
<td>Foundational Studies: 10. Express themselves effectively, professionally, and persuasively both orally and in writing.</td>
</tr>
<tr>
<td>Students will interact with team members to communicate and solve problems.</td>
<td></td>
</tr>
</tbody>
</table>
# Program Objective C: Effective communication

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Mapping</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLO 3.1: Exhibit good verbal communication skills</td>
<td><strong>Foundational Studies:</strong> 10. Express themselves effectively, professionally, and persuasively both orally and in writing.</td>
</tr>
<tr>
<td>Students will exhibit good verbal communication skills.</td>
<td></td>
</tr>
<tr>
<td>SLO 3.2: Demonstrate fluency in written communication</td>
<td><strong>Foundational Studies:</strong> 10. Express themselves effectively, professionally, and persuasively both orally and in writing.</td>
</tr>
<tr>
<td>Students will demonstrate fluency in written communication.</td>
<td></td>
</tr>
<tr>
<td>SLO 3.3: Deliver formal presentations using technology</td>
<td><strong>Foundational Studies:</strong> 10. Express themselves effectively, professionally, and persuasively both orally and in writing.</td>
</tr>
<tr>
<td>Students will deliver formal presentations using appropriate technology.</td>
<td></td>
</tr>
</tbody>
</table>

# Program Objective D: Safety/Accident Prevention

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Mapping</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLO 4.1: Apply safety principles around technical equipment</td>
<td>No Mapping</td>
</tr>
<tr>
<td>Students will apply safety principles around technical equipment and processes.</td>
<td></td>
</tr>
<tr>
<td>SLO 4.2: Demonstrate knowledge of safety principles</td>
<td>No Mapping</td>
</tr>
<tr>
<td>Students will demonstrate knowledge of safety principles in the planning process.</td>
<td></td>
</tr>
<tr>
<td>SLO 4.3: Safety principles in supervision &amp; mgt. of others</td>
<td>No Mapping</td>
</tr>
<tr>
<td>Students will demonstrate knowledge of safety principles in supervision and management of others.</td>
<td></td>
</tr>
</tbody>
</table>

# Program Objective E: Utilize quality concepts

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Mapping</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLO 5.1: Understand quality concerns in manufacturing</td>
<td>No Mapping</td>
</tr>
<tr>
<td>Students will understand quality concerns in manufacturing.</td>
<td></td>
</tr>
<tr>
<td>SLO 5.2: Apply quality concepts</td>
<td>No Mapping</td>
</tr>
<tr>
<td>Students will apply quality concepts.</td>
<td></td>
</tr>
<tr>
<td>SLO 5.3: Implement concepts of continuous improvement</td>
<td>No Mapping</td>
</tr>
<tr>
<td>Students will implement concepts of continuous improvement.</td>
<td></td>
</tr>
</tbody>
</table>

# Program Objective F: Engage in life-long learning

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Mapping</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLO 6.1: Demonstrate a desire for life-long learning</td>
<td>No Mapping</td>
</tr>
<tr>
<td>Students will demonstrate a desire for life-long learning.</td>
<td></td>
</tr>
</tbody>
</table>

## Curriculum Map

### Active Curriculum Maps

- **Manufacturing Engineering Technology** (See appendix)
  
  **Alignment Set:** BS in Manufacturing Engineering Technology
  
  **Created:** 02/12/2014 8:27:33 am CST
  
  **Last Modified:** 02/12/2014 9:04:09 am CST
Communication of Outcomes

The outcomes of the program are posted on the AMM’s program website which can be found at the following location: http://technology.indstate.edu/amm/  Outcomes are also shared with the program’s advisory committee
Archive (This area is to be used for archiving pre-TaskStream assessment data and for current documents.)

File Attachments:

1. **Advanced Manufacturing Management 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.
# 2010-2011 Assessment Cycle

## Assessment Plan

| Outcomes and Measures |

## Assessment Findings

<table>
<thead>
<tr>
<th>Finding per Measure</th>
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</thead>
</table>

<table>
<thead>
<tr>
<th>Overall Recommendations</th>
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</thead>
</table>

*No text specified*

<table>
<thead>
<tr>
<th>Overall Reflection</th>
</tr>
</thead>
</table>

*No text specified*
## 2011-2012 Assessment Cycle

### Assessment Plan

<table>
<thead>
<tr>
<th>Outcomes and Measures</th>
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</thead>
</table>

### Assessment Findings

<table>
<thead>
<tr>
<th>Finding per Measure</th>
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<tbody>
<tr>
<td>Overall Recommendations</td>
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</tbody>
</table>

*No text specified*

<table>
<thead>
<tr>
<th>Overall Reflection</th>
</tr>
</thead>
</table>

*No text specified*
### Assessment Plan

#### Outcomes and Measures

**BS in Adv Manufacturing Mgt Outcome Set**

<table>
<thead>
<tr>
<th>Program Objective #1: Mastery of knowledge and tools</th>
</tr>
</thead>
</table>
| **SLO 1.1: Apply CAD principles**  
| Students will apply CAD principles. |
| **Measure:** In Class Project (Chapter 10, Final Assembly Assignment)  
| Direct - Student Artifact |
| **Details/Description:** This course is designed to provide students with the knowledge and skills to sketch, visualize, draw, and document multiple technical graphic formats for the communication of various design and manufactured items. Students are expected to utilize computers and software for design in manufacturing. The data for this capability was gathered from model pulley assembly students created in their Introduction to Solid Modeling (MET 203-001) class of Fall 2012. |
| **Target:** |
| **Implementation Plan (timeline):** Fall 2012, fall 2013 |
| **Responsible Individual(s):** AMM Program Champion |

<table>
<thead>
<tr>
<th>Program Objective #2: Effective Problem Solving</th>
</tr>
</thead>
</table>
| **SLO 2.1: Use scientific methods to solve problems**  
| Students will use scientific methods to solve problems. |
| **Measure:** In Class Exam  
| Direct - Exam |
| **Details/Description:** This course is designed to develop student knowledge of metal machining principles through machine shop experience. The application of metal machining technology in industry is addressed. The focus is on chip making or metal removal type manufacturing processes and methods. The data for this capability was gathered from the second exam the student appeared for in their “using scientific methods to solve problems” class of fall 2012. |
| **Target:** |
| **Implementation Plan (timeline):** Fall 2012, fall 2013 |
| **Responsible Individual(s):** AMM Program Champion |

**Program Objective #5: Utilize quality concepts**

<table>
<thead>
<tr>
<th>Students will utilize quality concepts.</th>
</tr>
</thead>
</table>
| **SLO 5.3: Implement concepts of continuous improvement**  
| Students will implement concepts of continuous improvement. |
| **Measure:** Final Paper  
| Direct - Student Artifact |
| **Details/Description:** The main objective of this course is to familiarize students with the most prominent manufacturing and management strategy (lean manufacturing) that various companies worldwide have adopted. The data for this capability was gathered from the final paper the students had to submit for their “implement concepts of continuous improvement” class of fall 2012. |
| **Target:** |
| **Implementation Plan (timeline):** Fall 2012, fall 2013 |
| **Responsible Individual(s):** AMM Program Champion |
Assessment Findings

Finding per Measure

BS in Adv Manufacturing Mgt Outcome Set

Program Objective #1: Mastery of knowledge and tools

| SLO 1.1: Apply CAD principles                     | Measure: In Class Project (Chapter 10, Final Assembly Assignment) |
| Students will apply CAD principles.              | Direct - Student Artifact                                      |
|                                                  |-----------------------------------------------------------------|

Details/Description: This course is designed to provide students with the knowledge and skills to sketch, visualize, draw, and document multiple technical graphic formats for the communication of various design and manufactured items. Students are expected to utilize computers and software for design in manufacturing. The data for this capability was gathered from model pulley assembly the students created in their Introduction to Solid Modeling (MET 203-001) class of Fall 2012.

Target:

Implementation Plan (timeline): Fall 2012, fall 2013

Responsible Individual(s): AMM Program Champion

Findings for In Class Project (Chapter 10, Final Assembly Assignment)

Summary of Findings: The findings for the Fall 2012 assessment time reflect that students are engaged in the extensive use of Computer Aided Design software. Students in this class use AutoCAD to design, in stages, a pulley system. Students demonstrate this capability by the completion of a final project which is a model assembly of the entire system. As can be seen in the graph below, all the students taking this class got a B or higher grade.

Reflections/Notes:

Substantiating Evidence:

Substantiating evidence for In Class Project (Word Document (Open XML)) (See appendix)

These Findings are associated with the following Actions:

Follow up with instructor

(Action Plan; 2012-2013 Assessment Cycle)

Program Objective #2: Effective Problem Solving

| SLO 2.1: Use scientific methods to solve problems | Measure: In Class Exam |
| Students will use scientific methods to solve problems. | Direct - Exam |
|                                                  |-----------------------------------------------------------------|

Details/Description: This course is designed to develop student knowledge of metal machining principles through machine shop experience. The application of metal machining technology in industry is addressed. The focus is on chip making or metal removal type manufacturing processes and methods. The data for this capability was gathered from the second exam the student appeared for in their “using scientific methods to solve problems” class of fall 2012.

Target:

Implementation Plan (timeline): Fall 2012, fall 2013

Responsible Individual(s): AMM Program Champion

Findings for In Class Exam
**Summary of Findings**: The findings for the fall 2012 assessment time reflect that students are engaged in gaining knowledge of metal machining principles through scientific methods. Students are required to have a fundamental understanding of Chemistry and Physics. Being able to take correct measurements and to also perform visual inspection, for documentation purposes are paramount. From the graph below out of 21 students taking exam 2, 80% received a C grade or higher. Approximately 20% of the class failed to pass the second exam. While a majority of the class passed this exam this course is deemed to be in need of a follow up for improvement measures to be undertaken.

**Recommendations:**

**Reflections/Notes**: While a majority of the class passed this exam this course is deemed to be in need of a follow up for improvement measures to be undertaken.

**Substantiating Evidence:**

- Substantiating evidence for In Class Exam (Word Document (Open XML)) (See appendix)

**These Findings are associated with the following Actions:**

- **Follow up with instructor**
  (Action Plan; 2012-2013 Assessment Cycle)

- **Students advised to take Physics classes prior**
  (Action Plan; 2012-2013 Assessment Cycle)

---

**Program Objective #5: Utilize quality concepts**

Students will utilize quality concepts.

<table>
<thead>
<tr>
<th>SLO 5.3: Implement concepts of continuous improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students will implement concepts of continuous improvement.</td>
</tr>
</tbody>
</table>

| Measure: Final Paper |
| Direct - Student Artifact |

**Details/Description**: The main objective of this course is to familiarize students with the most prominent manufacturing and management strategy (lean manufacturing) that various companies worldwide have adopted. The data for this capability was gathered from the final paper the students had to submit for their “implement concepts of continuous improvement” class of fall 2012.

**Target:**

**Implementation Plan (timeline)**: Fall 2012, fall 2013

**Responsible Individual(s)**: AMM Program Champion

| Findings for Final Paper |

**Summary of Findings**: The findings for the fall 2012 assessment time reflect that students are engaged in gaining knowledge of how to draw inferences from case studies surrounding traditional and lean manufacturing systems, how to differentiate the difference between traditional and lean manufacturing systems and to describe when and where manufacturing tools lean are used etc. They were also tested with assignments, exams and projects which required knowledge about different subject area such as, Lean Manufacturing, Inventory Control, and Productivity Improvement Techniques. It can be seen from the graph below that out of 13 students who took the class, almost 77% of them scored above 80% on their final paper and the rest 23% of the students did not get pass mark for the final paper.

**Recommendations**:

**Reflections/Notes**:

**Substantiating Evidence**:

- Substantiating evidence for Final Paper (Word Document (Open XML)) (See appendix)

**These Findings are associated with the following Actions**:

- **Follow up with instructor**
  (Action Plan; 2012-2013 Assessment Cycle)
**Overall Recommendations**

No text specified

**Overall Reflection**

No text specified

**Action Plan**

**Actions**

**BS in Adv Manufacturing Mgt Outcome Set**

**Program Objective #1: Mastery of knowledge and tools**

<table>
<thead>
<tr>
<th>SLO 1.1: Apply CAD principles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students will apply CAD principles.</td>
</tr>
</tbody>
</table>

This Action is associated with the following Findings

Findings for In Class Project (Chapter 10, Final Assembly Assignment) (Assessment Plan and Assessment Findings; 2012-2013 Assessment Cycle)

Summary of Findings: The findings for the Fall 2012 assessment time reflect that students are engaged in the extensive use of Computer Aided Design software. Students in this class use AutoCAD to design, in stages, a pulley system. Students demonstrate this capability by the completion of a final project which is a model assembly of the entire system. As can be seen in the graph below, all the students taking this class got a B or higher grade.

Action Details: The coordinator of the manufacturing program will follow up with the instructor of this course every semester to ascertain student output for this class.

Implementation Plan (timeline):

Key/Responsible Personnel:

Measures:

Resource Allocations:

Priority:

**Program Objective #2: Effective Problem Solving**

<table>
<thead>
<tr>
<th>SLO 2.1: Use scientific methods to solve problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students will use scientific methods to solve problems.</td>
</tr>
</tbody>
</table>

This Action is associated with the following Findings

Findings for In Class Exam (Assessment Plan and Assessment Findings; 2012-2013 Assessment Cycle)

Summary of Findings: The findings for the fall 2012 assessment time reflect that students are engaged in gaining knowledge of metal machining principles through scientific methods. Students are required to have a fundamental understanding of Chemistry and Physics. Being able to take correct measurements and to also preform visual inspection, for documentation purposes are paramount. From the graph below out of 21 students taking exam 2, 80% received a C grade or higher. Approximately 20% of the class failed to pass the second exam. While a majority of the class passed this exam this course is deemed to be in need of a follow up for improvement
measures to be undertaken.

**Action Details:** The coordinator of the manufacturing program will follow up with the instructor of this course every semester to ascertain student output for this class.

**Implementation Plan (timeline):**

**Key/Responsible Personnel:**

**Measures:**

**Resource Allocations:**

**Priority:**

---

**Action:** Students advised to take Physics classes prior

**This Action is associated with the following Findings**

**Findings for In Class Exam**
(Assessment Plan and Assessment Findings; 2012-2013 Assessment Cycle)

**Summary of Findings:** The findings for the fall 2012 assessment time reflect that students are engaged in gaining knowledge of metal machining principles through scientific methods. Students are required to have a fundamental understanding of Chemistry and Physics. Being able to take correct measurements and to also preform visual inspection, for documentation purposes are paramount. From the graph below out of 21 students taking exam 2, 80% received a C grade or higher. Approximately 20% of the class failed to pass the second exam. While a majority of the class passed this exam this course is deemed to be in need of a follow up for improvement measures to be undertaken.

**Action Details:** Students will be advised of a need to have their basic level Physics classes taken before they continue with this class.

**Implementation Plan (timeline):**

**Key/Responsible Personnel:**

**Measures:**

**Resource Allocations:**

**Priority:**

---

**Program Objective #5: Utilize quality concepts**

Students will utilize quality concepts.

**SLO 5.3: Implement concepts of continuous improvement**

Students will implement concepts of continuous improvement.

**Action:** Follow up with instructor

**This Action is associated with the following Findings**

**Findings for Final Paper**
(Assessment Plan and Assessment Findings; 2012-2013 Assessment Cycle)

**Summary of Findings:** The findings for the fall 2012 assessment time reflect that students are engaged in gaining knowledge of how to draw inferences from case studies surrounding traditional and lean manufacturing systems, how to differentiate the difference between traditional and lean manufacturing systems and to describe when and where manufacturing tools lean are used etc. They were also tested with assignments, exams and projects which required knowledge about different subject area such as, Lean Manufacturing, Inventory Control, and Productivity Improvement Techniques. It can be seen from the graph below that out of 13 students who took the class, almost 77% of them scored above 80% on their final paper and the rest 23% of the
students did not get pass mark for the final paper.

**Action Details:** The coordinator of the manufacturing program will follow up with the instructor of this course every semester to ascertain student output for this class.

**Implementation Plan (timeline):**

**Key/Responsible Personnel:**

**Measures:**

**Resource Allocations:**

**Priority:**

---

### Status Report

#### Action Statuses

**BS in Adv Manufacturing Mgt Outcome Set**

**Program Objective #1: Mastery of knowledge and tools**

<table>
<thead>
<tr>
<th>SLO 1.1: Apply CAD principles</th>
<th><strong>Action:</strong> Follow up with instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students will apply CAD principles.</td>
<td><strong>Action Details:</strong> The coordinator of the manufacturing program will follow up with the instructor of this course every semester to ascertain student output for this class.</td>
</tr>
<tr>
<td><strong>Implementation Plan (timeline):</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Key/Responsible Personnel:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Measures:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Resource Allocations:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Priority:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Status</strong> for Follow up with instructor</td>
<td></td>
</tr>
<tr>
<td><strong>Current Status:</strong> Completed</td>
<td></td>
</tr>
<tr>
<td><strong>Resource Allocation(s) Status:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Next Steps/Additional Information:</strong> Coordinator discussed results with the instructor.</td>
<td></td>
</tr>
</tbody>
</table>

**Program Objective #2: Effective Problem Solving**

<table>
<thead>
<tr>
<th>SLO 2.1: Use scientific methods to solve problems</th>
<th><strong>Action:</strong> Follow up with instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students will use scientific methods to solve problems</td>
<td><strong>Action Details:</strong> The coordinator of the manufacturing program will follow up with the instructor of this course every semester to ascertain student output for this class.</td>
</tr>
<tr>
<td><strong>Implementation Plan (timeline):</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Key/Responsible Personnel:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Measures:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Resource Allocations:</strong></td>
<td></td>
</tr>
</tbody>
</table>
Program Outcomes Assessment
BS in Manufacturing Engineering Technology

- Implementation Plan (timeline):
- Key/Responsible Personnel:
- Measures:
- Resource Allocations:
- Priority:

**Status** for Follow up with instructor

**Current Status:** Completed

**Resource Allocation(s) Status:**

**Next Steps/Additional Information:** Coordinator discussed results with the instructor. Coordinator discussed modifying or adding Physics class in department meetings.

- Action: Students advised to take Physics classes prior

**Action Details:** Students will be advised of a need to have their basic level Physics classes taken before they continue with this class.

**Implementation Plan (timeline):**

**Key/Responsible Personnel:**

**Measures:**

**Resource Allocations:**

**Priority:**

**Status** for Students advised to take Physics classes prior

*No Status Added*

### Program Objective #5: Utilize quality concepts

Students will utilize quality concepts.

<table>
<thead>
<tr>
<th>SLO 5.3: Implement concepts of continuous improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students will implement concepts of continuous improvement.</td>
</tr>
</tbody>
</table>

**Action:** Follow up with instructor

**Action Details:** The coordinator of the manufacturing program will follow up with the instructor of this course every semester to ascertain student output for this class.

**Implementation Plan (timeline):**

**Key/Responsible Personnel:**

**Measures:**

**Resource Allocations:**

**Priority:**
**Status** for Follow up with instructor

**Current Status:** Completed

**Resource Allocation(s) Status:**

**Next Steps/Additional Information:** Coordinator discussed results with the instructor.

---

**Status Summary**

Completed. Information was disseminated and discussed with appropriate faculty.

**Summary of Next Steps**

Continue discussions with faculty.
# Assessment Plan

## Outcomes and Measures

### BS in Adv Manufacturing Mgt Outcome Set

#### Program Objective #1: Mastery of knowledge and tools

| SLO 1.1: Apply CAD principles | **Measure**: Evaluation of inclass project per rubric  
Direct - Other |
|--------------------------------|--------------------------------------------------|
| Students will apply CAD principles. | **Details/Description**: Source of Assessment: MET 203  
**Target:**  
**Implementation Plan (timeline)**: Second Assessment Fall 2013 (3 year cycle)  
**Responsible Individual(s)**: AMM Program Champion  
**Supporting Attachments**:  
  - ATMAE CMS Distribution.xlsx (Excel Workbook (Open XML)) (See appendix) |

| SLO 1.2: Plan/execute production | **Measure**: CMS of ATMAE  
Direct - Exam |
|----------------------------------|--------------------------------------------------|
| Students will plan and execute production. | **Details/Description**: The Certified Manufacturing Specialist certification exam from the Association of Technology, Management, and Applied Engineering will be utilized to assess this SLO. Specifically, the competency categories of production planning, quality, supervision and management will be assessed.  
**Target**: 70% of the students taking the exam will score above 70% on the categories listed above  
**Implementation Plan (timeline)**: Spring 2014  
**Responsible Individual(s)**: |

| SLO 1.3: Utilize control systems in automated manufacturing | **Measure**: Evaluation of lab work in class per rubric  
Direct - Other |
|-----------------------------------|--------------------------------------------------|
| Students will utilize control systems in automated manufacturing. | **Details/Description**: Source of Assessment: TMGT 478  
**Target:**  
**Implementation Plan (timeline)**: Second Assessment Fall 2013 (3 year cycle) |
**SLO 1.4: Utilize computers and software for design**

| Measure: | CMS of ATMAE |
| Direct - Exam |

**Details/Description:** The Certified Manufacturing Specialist certification exam from the Association of Technology, Management, and Applied Engineering will be utilized to assess this SLO. Specifically, the competency categories of CIM, Quality, and Technical Drafting will be assessed.

**Target:** 70% of the students taking the exam will score above 70% on the categories listed above

**Implementation Plan (timeline):** Spring 2014

**Responsible Individual(s):**

---

| Measure: | Evaluation of inclass project per rubric |
| Direct - Other |

**Details/Description:** Source of Assessment: MET 203

**Target:**

**Implementation Plan (timeline):** Second Assessment Fall 2013 (3 year cycle)

**Responsible Individual(s):** AMM Program Champion

---

**Program Objective #2: Effective Problem Solving**

**SLO 2.1: Use scientific methods to solve problems**

| Measure: | Evaluation of performance per semester project rubric |
| Direct - Other |

**Details/Description:** Source of Assessment: ECT 480

**Target:**

**Implementation Plan (timeline):** Second Assessment Spring 2014 (3 year cycle)

**Responsible Individual(s):** AMM Program Champion

---

**SLO 2.2: Use management principles to solve problems**

| Measure: | Evaluation of inclass project per rubric |
| Direct - Other |

**Details/Description:** Source of Assessment: TMGT

**Target:**

**Implementation Plan (timeline):** Second Assessment Fall 2013 (3 year cycle)

**Responsible Individual(s):** AMM Program Champion

---

**SLO 2.3: Interact with team members**

| Measure: | Evaluation of inclass project per rubric |
| Direct - Other |

**Details/Description:** Source of Assessment: TMGT 478

**Target:**

**Implementation Plan (timeline):** Second Assessment Spring 2014 (3 year cycle)

**Responsible Individual(s):** AMM Program Champion
### Program Objective #3: Effective communication

#### SLO 3.1: Exhibit good verbal communication skills
- **Measure:** Evaluation of inclass project per rubric  
  Direct - Other  
  
  - **Details/Description:** Source of Assessment: TMGT 492  
  - **Target:**  
  - **Implementation Plan (timeline):** Second Assessment Fall 2013 (3 year cycle)  
  - **Responsible Individual(s):** AMM Program Champion

#### SLO 3.2: Demonstrate fluency in written communication
- **Measure:** Evaluation of internship per rubric  
  Direct - Other  
  
  - **Details/Description:** Source of Assessment: TMGT 351  
  - **Target:**  
  - **Implementation Plan (timeline):** Second Assessment Fall 2013 (3 year cycle)  
  - **Responsible Individual(s):** AMM Program Champion

#### SLO 3.3: Deliver formal presentations using technology
- **Measure:** Evaluation of inclass project per rubric  
  Direct - Other  
  
  - **Details/Description:** Source of Assessment: TMGT 492  
  - **Target:**  
  - **Implementation Plan (timeline):** Second Assessment Spring 2014 (3 year cycle)  
  - **Responsible Individual(s):** AMM Program Champion

### Program Objective #4: Safety/Accident Prevention

#### SLO 4.1: Apply safety principles around technical equipment
- **Measure:** Evaluation of safety in lab work per rubric  
  Direct - Other  
  
  - **Details/Description:** Source of Assessment: MFG 370 or MFG 371  
  - **Target:**  
  - **Implementation Plan (timeline):** Second Assessment Fall 2013 (3 year cycle)  
  - **Responsible Individual(s):** AMM Program Champion

#### SLO 4.2: Demonstrate knowledge of safety principles
- **Measure:** CMS of ATMAE  
  Direct - Exam  
  
  - **Details/Description:** The Certified Manufacturing Specialist certification exam from the Association of Technology, Management, and Applied Engineering will be utilized to assess this SLO. Specifically, the competency categories of manufacturing philosophies will be assessed.  
  - **Target:** 70% of the students taking the exam will score above 70% on the categories listed above  
  - **Implementation Plan (timeline):** Spring 2014  
  - **Responsible Individual(s):**
Program Outcomes Assessment
BS in Manufacturing Engineering Technology

**Measure:** Evaluation of safety in the internship per rubric
Direct - Other

**Details/Description:** Source of Assessment: TMGT 351
**Target:**
**Implementation Plan (timeline):** Second Assessment Fall 2013 (3 year cycle)
**Responsible Individual(s):** AMM Program Champion

**SLO 4.3: Safety principles in supervision & mgt. of others**
Students will demonstrate knowledge of safety principles in supervision and management of others.

**Measure:** Evaluation of performance per semester project rubric
Direct - Other

**Details/Description:** Source of Assessment: TMGT 492
**Target:**
**Implementation Plan (timeline):** Second Assessment Spring 2014 (3 year cycle)
**Responsible Individual(s):** AMM Program Champion

**Program Objective #5: Utilize quality concepts**
Students will utilize quality concepts.

**SLO 5.1: Understand quality concerns in manufacturing**
Students will understand quality concerns in manufacturing.

**Measure:** CMS of ATMAE
Direct - Exam

**Details/Description:** The Certified Manufacturing Specialist certification exam from the Association of Technology, Management, and Applied Engineering will be utilized to assess this SLO. Specifically, the competency category of quality will be assessed.
**Target:** 70% of the students taking the exam will score above 70% on the categories listed above
**Implementation Plan (timeline):** Spring 2014
**Responsible Individual(s):**

**Measure:** Evaluation of performance per semester project rubric
Direct - Other

**Details/Description:** Source of Assessment: TMGT 473
**Target:**
**Implementation Plan (timeline):** Second Assessment Spring 2014 (3 year cycle)
**Responsible Individual(s):** AMM Program Champion

**SLO 5.2: Apply quality concepts**
Students will apply quality concepts.

**Measure:** Evaluation of performance per semester project rubric
Direct - Other

**Details/Description:** Source of Assessment: TMGT 473
**Target:**
**Implementation Plan (timeline):** Second Assessment Spring 2014 (3 year cycle)
**Responsible Individual(s):** AMM Program Champion

**SLO 5.3: Implement concepts of continuous improvement**

**Measure:** Evaluation of inclass project
Indirect - Other
Students will implement concepts of continuous improvement.

**Details/Description:** Evaluation of inclass project

**Source of Assessment:** TMGT 374

**Target:**

**Implementation Plan (timeline):** Second Assessment Spring 2014 (3 year cycle)

**Responsible Individual(s):** AMM Program Champion

---

**Program Objective #6: Engage in life-long learning**

Students will engage in life-long learning.

**SLO 6.1: Demonstrate a desire for life-long learning**

Students will demonstrate a desire for life-long learning.

**Measure:** Evaluation of performance during internship

Indirect - Other

**Details/Description:** Evaluation of performance during internship

**Source of Assessment:** TMGT 351

**Target:**

**Implementation Plan (timeline):** Second Assessment Spring 2014 (3 year cycle)

**Responsible Individual(s):** AMM Program Champion

---

**Assessment Findings**

**Finding per Measure**

---

**BS in Adv Manufacturing Mgt Outcome Set**

**Program Objective #1: Mastery of knowledge and tools**

**SLO 1.1: Apply CAD principles**

Students will apply CAD principles.

**Measure:** Evaluation of inclass project per rubric

Direct - Other

**Details/Description:** Source of Assessment: MET 203

**Target:**

**Implementation Plan (timeline):** Second Assessment Fall 2013 (3 year cycle)

**Responsible Individual(s):** AMM Program Champion

**Supporting Attachments:**

ATMAE CMS Distribution.xlsx (Excel Workbook (Open XML)) (See appendix)

**Findings for Evaluation of inclass project per rubric**

No Findings Added

---

**SLO 1.2: Plan/execute production**

Students will plan and execute production.

**Measure:** CMS of ATMAE

Direct - Exam

**Details/Description:** The Certified Manufacturing Specialist certification exam from the Association of Technology, Management, and Applied Engineering will be utilized to assess this SLO. Specifically, the competency categories of production planning, quality, supervision and
management will be assessed.

**Target:** 70% of the students taking the exam will score above 70% on the categories listed above

**Implementation Plan (timeline):** Spring 2014

**Responsible Individual(s):**

---

**Findings** for CMS of ATMAE

**Summary of Findings:** only one manufacturing major took the exam in the 2014 session. Of the 29 students that took the exam in the 2013 session, none were manufacturing majors.

**Results:** Target Achievement: Not Met

**Recommendations:** There are more students in the major. At least all seniors must take the CMS exam.

**Reflections/Notes:**

**Substantiating Evidence:**

- CMS data.xlsx (Excel Workbook (Open XML)) (See appendix)

---

**Measure:** Evaluation of inclass project per rubric

**Direct - Other**

**Details/Description:** Source of Assessment: TMGT 471

**Target:**

**Implementation Plan (timeline):** Second Assessment Fall 2013 (3 year cycle)

**Responsible Individual(s):** AMM Program Champion

---

**Findings** for Evaluation of inclass project per rubric

No Findings Added

---

**SLO 1.3: Utilize control systems in automated manufacturing**

Students will utilize control systems in automated manufacturing.

**Measure:** Evaluation of lab work in class per rubric

**Direct - Other**

**Details/Description:** Source of Assessment: TMGT 478

**Target:**

**Implementation Plan (timeline):** Second Assessment Fall 2013 (3 year cycle)

**Responsible Individual(s):** AMM Program Champion

---

**Findings** for Evaluation of lab work in class per rubric

No Findings Added

---

**SLO 1.4: Utilize computers and software for design**

Students will utilize computers and software for design in manufacturing.

**Measure:** CMS of ATMAE

**Direct - Exam**

**Details/Description:** The Certified Manufacturing Specialist certification exam from the Association of Technology, Management, and Applied Engineering will be utilized to assess this SLO. Specifically, the competency categories of CIM, Quality, and Technical Drafting will be assessed.

**Target:** 70% of the students taking the exam will score above 70% on the categories listed above
**Implementation Plan (timeline):** Spring 2014
**Responsible Individual(s):**

<table>
<thead>
<tr>
<th>Findings for CMS of ATMAE</th>
</tr>
</thead>
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<td><strong>Summary of Findings:</strong> only one manufacturing major took the exam in the 2014 session. Of the 29 students that took the exam in the 2013 session, none were manufacturing majors.</td>
</tr>
<tr>
<td><strong>Results:</strong> Target Achievement: Met</td>
</tr>
<tr>
<td><strong>Recommendations:</strong> There are more students in the major. At least all seniors must take the CMS exam</td>
</tr>
<tr>
<td><strong>Reflections/Notes:</strong></td>
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**Measure:** Evaluation of inclass project per rubric
**Direct - Other**

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<tr>
<td><strong>Responsible Individual(s):</strong> AMM Program Champion</td>
</tr>
<tr>
<td><strong>Findings for Evaluation of inclass project per rubric</strong></td>
</tr>
<tr>
<td>No Findings Added</td>
</tr>
</tbody>
</table>

**Program Objective #2: Effective Problem Solving**

**SLO 2.1: Use scientific methods to solve problems**
Students will use scientific methods to solve problems.

<p>| Measure: Evaluation of performance per semester project rubric |</p>
<table>
<thead>
<tr>
<th>Direct - Other</th>
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<tbody>
<tr>
<td><strong>Details/Description:</strong> Source of Assessment: ECT 480</td>
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<tr>
<td><strong>Target:</strong></td>
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<td><strong>Implementation Plan (timeline):</strong> Second Assessment Spring 2014 (3 year cycle)</td>
</tr>
<tr>
<td><strong>Responsible Individual(s):</strong> AMM Program Champion</td>
</tr>
<tr>
<td><strong>Findings for Evaluation of performance per semester project rubric</strong></td>
</tr>
<tr>
<td>No Findings Added</td>
</tr>
</tbody>
</table>

**SLO 2.2: Use management principles to solve problems**
Students will use management principles to solve problems.

<p>| Measure: Evaluation of inclass project per rubric |</p>
<table>
<thead>
<tr>
<th>Direct - Other</th>
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<tr>
<td><strong>Details/Description:</strong> Source of Assessment: TMGT</td>
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</tr>
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<td><strong>Implementation Plan (timeline):</strong> Second Assessment Fall 2013 (3 year cycle)</td>
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<td><strong>Responsible Individual(s):</strong> AMM Program Champion</td>
</tr>
<tr>
<td><strong>Findings for Evaluation of inclass project per rubric</strong></td>
</tr>
</tbody>
</table>
### SLO 2.3: Interact with team members

**Measure:** Evaluation of inclass project per rubric  
Direct - Other

**Details/Description:** Source of Assessment: TMGT 478  
Target:  
Implementation Plan (timeline): Second Assessment Spring 2014 (3 year cycle)  
Responsibility Individual(s): AMM Program Champion

**Findings** for Evaluation of inclass project per rubric

No Findings Added

### Program Objective #3: Effective communication

#### SLO 3.1: Exhibit good verbal communication skills

**Measure:** Evaluation of inclass project per rubric  
Direct - Other

**Details/Description:** Source of Assessment: TMGT 492  
Target:  
Implementation Plan (timeline): Second Assessment Fall 2013 (3 year cycle)  
Responsibility Individual(s): AMM Program Champion

**Findings** for Evaluation of inclass project per rubric

No Findings Added

#### SLO 3.2: Demonstrate fluency in written communication

**Measure:** Evaluation of internship per rubric  
Direct - Other

**Details/Description:** Source of Assessment: TMGT 351  
Target:  
Implementation Plan (timeline): Second Assessment Fall 2013 (3 year cycle)  
Responsibility Individual(s): AMM Program Champion

**Findings** for Evaluation of internship per rubric

No Findings Added

#### SLO 3.3: Deliver formal presentations using technology

**Measure:** Evaluation of inclass project per rubric  
Direct - Other

**Details/Description:** Source of Assessment: TMGT 492  
Target:
Implementation Plan (timeline): Second Assessment Spring 2014 (3 year cycle)
Responsible Individual(s): AMM Program Champion

Findings for Evaluation of inclass project per rubric
No Findings Added

Program Objective #4: Safety/Accident Prevention

SLO 4.1: Apply safety principles around technical equipment
Students will apply safety principles around technical equipment and processes.

Measure: Evaluation of safety in lab work per rubric
Direct - Other

Details/Description: Source of Assessment: MFG 370 or MFG 371
Target:
Implementation Plan (timeline): Second Assessment Fall 2013 (3 year cycle)
Responsible Individual(s): AMM Program Champion

Findings for Evaluation of safety in lab work per rubric
No Findings Added

SLO 4.2: Demonstrate knowledge of safety principles
Students will demonstrate knowledge of safety principles in the planning process.

Measure: CMS of ATMAE
Direct - Exam

Details/Description: The Certified Manufacturing Specialist certification exam from the Association of Technology, Management, and Applied Engineering will be utilized to assess this SLO. Specifically, the competency categories of manufacturing philosophies will be assessed.
Target: 70% of the students taking the exam will score above 70% on the categories listed above
Implementation Plan (timeline): Spring 2014
Responsible Individual(s):

Findings for CMS of ATMAE

Summary of Findings: only one manufacturing major took the exam in the 2014 session. Of the 29 students that took the exam in the 2013 session, none were manufacturing majors.
Results: Target Achievement: Not Met
Recommendations:
Reflections/Notes: There are more students in the major. At least all seniors must take the CMS exam

Measure: Evaluation of safety in the internship per rubric
Direct - Other

Details/Description: Source of Assessment: TMGT 351
Target:
Implementation Plan (timeline): Second Assessment Fall 2013 (3 year cycle)
Responsible Individual(s): AMM Program Champion
**Program Objectives**

### SLO 4.3: Safety principles in supervision & mgt. of others

Students will demonstrate knowledge of safety principles in supervision and management of others.

**Measure:** Evaluation of performance per semester project rubric  
Direct - Other

**Details/Description:** Source of Assessment: TMGT 492

**Target:**  
Implementation Plan (timeline): Second Assessment Spring 2014 (3 year cycle)

**Responsible Individual(s):** AMM Program Champion

---

### SLO 4.3: Safety principles in supervision & mgt. of others (cont.)

**Measure:** Evaluation of performance per semester project rubric  
Direct - Other

**Details/Description:** Source of Assessment: TMGT 492

**Target:**  
Implementation Plan (timeline): Second Assessment Spring 2014 (3 year cycle)

**Responsible Individual(s):** AMM Program Champion

---

### Program Objective #5: Utilize quality concepts

Students will utilize quality concepts.

**Measure:** CMS of ATMAE  
Direct - Exam

**Details/Description:** The Certified Manufacturing Specialist certification exam from the Association of Technology, Management, and Applied Engineering will be utilized to assess this SLO. Specifically, the competency category of quality will be assessed.

**Target:**  
Implementation Plan (timeline): Spring 2014

**Responsible Individual(s):**

---

**Measure:** CMS of ATMAE  
Direct - Exam

**Details/Description:** The Certified Manufacturing Specialist certification exam from the Association of Technology, Management, and Applied Engineering will be utilized to assess this SLO. Specifically, the competency category of quality will be assessed.

**Target:**  
Implementation Plan (timeline): Spring 2014

**Responsible Individual(s):**

---

**Summary of Findings:** only one manufacturing major took the exam in the 2014 session. Of the 29 students that took the exam in the 2013 session, none were manufacturing majors.

**Results:** Target Achievement: Not Met

**Recommendations:** There are more students in the major. At least all seniors must take the CMS exam

**Reflections/Notes:**
No Findings Added

**SLO 5.2: Apply quality concepts**

Students will apply quality concepts.

**Measure:** Evaluation of performance per semester project rubric

<table>
<thead>
<tr>
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<th>Other</th>
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</table>

**Details/Description:** Source of Assessment: TMGT 473

**Target:**

**Implementation Plan (timeline):** Second Assessment Spring 2014 (3 year cycle)

**Responsible Individual(s):** AMM Program Champion

**Findings** for Evaluation of performance per semester project rubric

No Findings Added

**SLO 5.3: Implement concepts of continuous improvement**

Students will implement concepts of continuous improvement.

**Measure:** Evaluation of inclass project

<table>
<thead>
<tr>
<th>Indirect</th>
<th>Other</th>
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**Details/Description:** Evaluation of inclass project

Source of Assessment: TMGT 374

**Target:**

**Implementation Plan (timeline):** Second Assessment Spring 2014 (3 year cycle)

**Responsible Individual(s):** AMM Program Champion

**Findings** for Evaluation of inclass project

No Findings Added

**Program Objective #6: Engage in life-long learning**

Students will engage in life-long learning.

**SLO 6.1: Demonstrate a desire for life-long learning**

Students will demonstrate a desire for life-long learning.

**Measure:** Evaluation of performance during internship

<table>
<thead>
<tr>
<th>Indirect</th>
<th>Other</th>
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**Details/Description:** Evaluation of performance during internship

Source of Assessment: TMGT 351

**Target:**

**Implementation Plan (timeline):** Second Assessment Spring 2014 (3 year cycle)

**Responsible Individual(s):** AMM Program Champion

**Findings** for Evaluation of performance during internship

No Findings Added

Overall Recommendations
No text specified

Overall Reflection

No text specified

Action Plan

Actions

BS in Manufacturing Engineering Technology

Program Objective A: Mastery of knowledge and tools

<table>
<thead>
<tr>
<th>SLO 1.2: Plan/execute production</th>
<th>Action: increase the percentage of majors taking the ATMAE exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students will plan and execute production.</td>
<td>This Action is associated with the following Findings No supporting Findings have been linked to this Action.</td>
</tr>
<tr>
<td></td>
<td>Action Details: Implement procedures to increase the percentage of majors taking the exam.</td>
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<tr>
<td></td>
<td>Implementation Plan (timeline): spring 2015</td>
</tr>
<tr>
<td></td>
<td>Key/Responsible Personnel: department chair and lead faculty</td>
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<tr>
<td></td>
<td>Measures:</td>
</tr>
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<td>Resource Allocations:</td>
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<table>
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<tr>
<th>SLO 1.4: Utilize computers and software for design</th>
<th>Action: increase the percentage of majors taking the ATMAE exam</th>
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<tbody>
<tr>
<td>Students will utilize computers and software for design in manufacturing.</td>
<td>This Action is associated with the following Findings No supporting Findings have been linked to this Action.</td>
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<td>Action Details: Implement procedures to increase the percentage of majors taking the exam.</td>
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<td>Key/Responsible Personnel: department chair and lead faculty</td>
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<td>Measures:</td>
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<td>Priority:</td>
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Status Report

Action Statuses

BS in Manufacturing Engineering Technology
**Program Objective A: Mastery of knowledge and tools**

<table>
<thead>
<tr>
<th>SLO 1.2: Plan/execute production</th>
<th>Action: increase the percentage of majors taking the ATMAE exam</th>
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<td><strong>Key/Responsible Personnel:</strong> department chair and lead faculty</td>
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<td><strong>Priority:</strong></td>
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<td><strong>Status</strong> for increase the percentage of majors taking the ATMAE exam</td>
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<tr>
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<table>
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<td><strong>Status</strong> for increase the percentage of majors taking the ATMAE exam</td>
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</tr>
<tr>
<td><em>No Status Added</em></td>
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**Status Summary**

*No text specified*

**Summary of Next Steps**

*No text specified*
### 2014-2015 Assessment Cycle

#### Assessment Plan

**Outcomes and Measures**

### BS in Manufacturing Engineering Technology

**Program Objective B: Effective Problem Solving**

| SLO 2.1: Use scientific methods to solve problems | Measure: Semester project rubric  
Direct - Student Artifact |
|-------------------------------------------------|---------------------------------------------------------------------------------|
| Details/Description: Evaluation of performance per semester project rubric  
Target:  
Implementation Plan (timeline): 3 year cycle  
Responsible Individual(s): MFET Program Champion |
| SLO 2.2: Use management principles to solve problems | Measure: CMS of ATMAE  
Direct - Exam |
| Details/Description: The Certified Manufacturing Specialist certification exam from the Association of Technology, Management, and Applied Engineering will be utilized to assess this SLO. Specifically, the competency categories of supervision and management will be assessed.  
Target: 70% of the students taking the exam will score above 70% on the categories listed above  
Implementation Plan (timeline): Spring 2015  
Responsible Individual(s): department chair |
| SLO 2.3: Interact with team members | Measure: In class project  
Direct - Student Artifact |
| Details/Description: Evaluation of in class project per rubric  
Target:  
Implementation Plan (timeline): 3 year cycle  
Responsible Individual(s): MFET Program Champion |

**SLO 2.3: Interact with team members**  
Students will interact with team members to communicate and solve problems.
Program Objective D: Safety/Accident Prevention

SLO 4.1: Apply safety principles around technical equipment

Students will apply safety principles around technical equipment and processes.

- **Measure:** CMS of ATMAE
  - Direct - Exam

  **Details/Description:** The Certified Manufacturing Specialist certification exam from the Association of Technology, Management, and Applied Engineering will be utilized to assess this SLO. Specifically, the competency categories of supervision and management will be assessed.

  **Target:** 70% of the students taking the exam will score above 70% on the categories listed above

  **Implementation Plan (timeline):** Spring 2015

  **Responsible Individual(s):** department chair

- **Measure:** Safety in lab work
  - Direct - Other

  **Details/Description:** Evaluation of safety in lab work per rubric

  **Target:**

  **Implementation Plan (timeline):** 3 year cycle

  **Responsible Individual(s):** MFET Program Champion

Program Objective E: Utilize quality concepts

Students will utilize quality concepts.

SLO 5.2: Apply quality concepts

Students will apply quality concepts.

- **Measure:** CMS of ATMAE
  - Direct - Exam

  **Details/Description:** The Certified Manufacturing Specialist certification exam from the Association of Technology, Management, and Applied Engineering will be utilized to assess this SLO. Specifically, the competency categories of supervision and management will be assessed.

  **Target:** 70% of the students taking the exam will score above 70% on the categories listed above

  **Implementation Plan (timeline):** Spring 2015

  **Responsible Individual(s):** department chair

SLO 5.3: Implement concepts of continuous improvement

Students will implement concepts of continuous improvement.

- **Measure:** In-class project
  - Direct - Student Artifact

  **Details/Description:** Evaluation of in-class project

  **Target:**

  **Implementation Plan (timeline):** Yearly

  **Responsible Individual(s):** MFET Program Champion

Program Objective F: Engage in life-long learning

Students will engage in life-long learning.

SLO 6.1: Demonstrate a desire for life-long learning

Students will demonstrate
a desire for life-long learning.

Details/Description: The Certified Manufacturing Specialist certification exam from the Association of Technology, Management, and Applied Engineering will be utilized to assess this SLO. Specifically, the competency categories of supervision and management will be assessed.

Target: 70% of the students taking the exam will score above 70% on the categories listed above

Implementation Plan (timeline): Spring 2015

Responsible Individual(s): department chair

Assessment Findings

Finding per Measure

BS in Manufacturing Engineering Technology

Program Objective B: Effective Problem Solving

SLO 2.1: Use scientific methods to solve problems

Students will use scientific methods to solve problems.

Measure: Semester project rubric
Direct - Student Artifact

Details/Description: Evaluation of performance per semester project rubric

Target:

Implementation Plan (timeline): 3 year cycle

Responsible Individual(s): MFET Program Champion

Findings for Semester project rubric

No Findings Added

SLO 2.2: Use management principles to solve problems

Students will use management principles to solve problems.

Measure: CMS of ATMAE
Direct - Exam

Details/Description: The Certified Manufacturing Specialist certification exam from the Association of Technology, Management, and Applied Engineering will be utilized to assess this SLO. Specifically, the competency categories of supervision and management will be assessed.

Target: 70% of the students taking the exam will score above 70% on the categories listed above

Implementation Plan (timeline): Spring 2015

Responsible Individual(s): department chair

Findings for CMS of ATMAE

No Findings Added

Measure: In class project
Direct - Student Artifact

Details/Description: Evaluation of in class project per rubric

Target:

Implementation Plan (timeline): 3 year cycle

Responsible Individual(s): MFET Program Champion
### SLO 2.3: Interact with team members
Students will interact with team members to communicate and solve problems.

<table>
<thead>
<tr>
<th>Measure: CMS of ATMAE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct - Exam</td>
</tr>
</tbody>
</table>

**Details/Description:** The Certified Manufacturing Specialist certification exam from the Association of Technology, Management, and Applied Engineering will be utilized to assess this SLO. Specifically, the competency categories of supervision and management will be assessed.

**Target:** 70% of the students taking the exam will score above 70% on the categories listed above

**Implementation Plan (timeline):** Spring 2015

**Responsible Individual(s):** department chair

<table>
<thead>
<tr>
<th>Findings for CMS of ATMAE</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Findings Added</td>
</tr>
</tbody>
</table>

### Program Objective D: Safety/Accident Prevention

**SLO 4.1: Apply safety principles around technical equipment**
Students will apply safety principles around technical equipment and processes.

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Direct - Exam</td>
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**Details/Description:** The Certified Manufacturing Specialist certification exam from the Association of Technology, Management, and Applied Engineering will be utilized to assess this SLO. Specifically, the competency categories of supervision and management will be assessed.

**Target:** 70% of the students taking the exam will score above 70% on the categories listed above

**Implementation Plan (timeline):** Spring 2015

**Responsible Individual(s):** department chair

<table>
<thead>
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<table>
<thead>
<tr>
<th>Measure: Safety in lab work</th>
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<tbody>
<tr>
<td>Direct - Other</td>
</tr>
</tbody>
</table>

**Details/Description:** Evaluation of safety in lab work per rubric

**Target:**

**Implementation Plan (timeline):** 3 year cycle

**Responsible Individual(s):** MFET Program Champion

<table>
<thead>
<tr>
<th>Findings for Safety in lab work</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Findings Added</td>
</tr>
</tbody>
</table>

### Program Objective E: Utilize quality concepts
Students will utilize quality concepts.
SLO 5.2: Apply quality concepts
Students will apply quality concepts.

**Measure:** CMS of ATMAE
Direct = Exam

**Details/Description:** The Certified Manufacturing Specialist certification exam from the Association of Technology, Management, and Applied Engineering will be utilized to assess this SLO. Specifically, the competency categories of supervision and management will be assessed.

**Target:** 70% of the students taking the exam will score above 70% on the categories listed above

**Implementation Plan (timeline):** Spring 2015

**Responsible Individual(s):** department chair

**Findings** for CMS of ATMAE

*No Findings Added*

---

SLO 5.3: Implement concepts of continuous improvement
Students will implement concepts of continuous improvement.

**Measure:** In-class project
Direct = Student Artifact

**Details/Description:** Evaluation of in-class project

**Target:**

**Implementation Plan (timeline):** Yearly

**Responsible Individual(s):** MFET Program Champion

**Findings** for In-class project

*No Findings Added*

---

Program Objective F: Engage in life-long learning
Students will engage in life-long learning.

SLO 6.1: Demonstrate a desire for life-long learning
Students will demonstrate a desire for life-long learning.

**Measure:** CMS of ATMAE
Direct = Exam

**Details/Description:** The Certified Manufacturing Specialist certification exam from the Association of Technology, Management, and Applied Engineering will be utilized to assess this SLO. Specifically, the competency categories of supervision and management will be assessed.

**Target:** 70% of the students taking the exam will score above 70% on the categories listed above

**Implementation Plan (timeline):** Spring 2015

**Responsible Individual(s):** department chair

**Findings** for CMS of ATMAE

*No Findings Added*

---

Overall Recommendations

*No text specified*

---

Overall Reflection
No text specified

- Action Plan

- Status Report
2015-2016 Assessment Cycle

Assessment Plan

Outcomes and Measures

BS in Manufacturing Engineering Technology

Program Objective A: Mastery of knowledge and tools

SLO 1.1: Apply CAD principles
Students will apply CAD principles.

Measure: Class project
Direct - Student Artifact

Details/Description: Evaluation of in class project per rubric
Target:
Implementation Plan (timeline): 3 year cycle
Responsible Individual(s): MFET Program Champion

Program Objective E: Utilize quality concepts
Students will utilize quality concepts.

SLO 5.3: Implement concepts of continuous improvement
Students will implement concepts of continuous improvement.

Measure: In-class project
Direct - Student Artifact

Details/Description: Evaluation of in-class project
Target:
Implementation Plan (timeline): Yearly
Responsible Individual(s): MFET Program Champion

Assessment Findings

Finding per Measure

BS in Manufacturing Engineering Technology

Program Objective A: Mastery of knowledge and tools

SLO 1.1: Apply CAD principles
Students will apply CAD principles.

Measure: Class project
Direct - Student Artifact

Details/Description: Evaluation of in class project per rubric
Target:
Implementation Plan (timeline): 3 year cycle
Responsible Individual(s): MFET Program Champion

Findings for Class project
Program Objective E: Utilize quality concepts
Students will utilize quality concepts.

SLO 5.3: Implement concepts of continuous improvement
Students will implement concepts of continuous improvement.

Measure: In-class project
Direct - Student Artifact

Details/Description: Evaluation of in-class project
Target:
Implementation Plan (timeline): Yearly
Responsible Individual(s): MFET Program Champion

Findings for In-class project
No Findings Added

Overall Recommendations
No text specified

Overall Reflection
No text specified

Action Plan

Status Report
## 2016-2017 Assessment Cycle

### Assessment Plan

#### Outcomes and Measures

**BS in Manufacturing Engineering Technology**

**Program Objective A: Mastery of knowledge and tools**

| SLO 1.1: Apply CAD principles | Measure: Class project  
Direct - Student Artifact | Details/Description: Evaluation of in class project per rubric  
Target:  
Implementation Plan (timeline): 3 year cycle  
Responsible Individual(s): MFET Program Champion |
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Students will apply CAD principles.</td>
<td></td>
</tr>
</tbody>
</table>
| **SLO 1.2: Plan/execute production**  
Students will plan and execute production. | Measure: Class project  
Direct - Student Artifact | Details/Description: Evaluation of in class project per rubric  
Target:  
Implementation Plan (timeline): 3 year cycle  
Responsible Individual(s): MFET Program Champion |
|-----------------------------|---------------------------------------------------------------|
| **SLO 1.3: Utilize control systems in automated manufacturing**  
Students will utilize control systems in automated manufacturing. | Measure: Lab work  
Direct - Other | Details/Description: Evaluation of lab work in class per rubric  
Target:  
Implementation Plan (timeline): 3 year cycle  
Responsible Individual(s): MFET Program Champion |
|-----------------------------|---------------------------------------------------------------|
| **SLO 1.4: Utilize computers and software for design**  
Students will utilize computers and software for design in manufacturing. | Measure: Class project  
Direct - Student Artifact | Details/Description: Evaluation of in class project per rubric  
Target:  
Implementation Plan (timeline): 3 year cycle  
Responsible Individual(s): MFET Program Champion |

**Program Objective B: Effective Problem Solving**
### SLO 2.1: Use scientific methods to solve problems

**Measure:** Semester project rubric  
Direct - Student Artifact

**Details/Description:** Evaluation of performance per semester project rubric  
**Target:**  
**Implementation Plan (timeline):** 3 year cycle  
**Responsible Individual(s):** MFET Program Champion

**Students will use scientific methods to solve problems.**

### SLO 2.3: Interact with team members

**Measure:** Class project  
Direct - Student Artifact

**Details/Description:** Evaluation of in class project per rubric  
**Target:**  
**Implementation Plan (timeline):** 3 year cycle  
**Responsible Individual(s):** MFET Program Champion

**Students will interact with team members to communicate and solve problems.**

### Program Objective C: Effective communication

### SLO 3.1: Exhibit good verbal communication skills

**Measure:** Class project  
Direct - Student Artifact

**Details/Description:** Evaluation of in class project per rubric  
**Target:**  
**Implementation Plan (timeline):** 3 year cycle  
**Responsible Individual(s):** MFET Program Champion

**Students will exhibit good verbal communication skills.**

### SLO 3.2: Demonstrate fluency in written communication

**Measure:** Internship rubric  
Direct - Other

**Details/Description:** Evaluation of internship per rubric  
**Target:**  
**Implementation Plan (timeline):** 3 year cycle  
**Responsible Individual(s):** MFET Program Champion

**Students will demonstrate fluency in written communication.**

### SLO 3.3: Deliver formal presentations using technology

**Measure:** Class project  
Direct - Student Artifact

**Details/Description:** Evaluation of in class project per rubric  
**Target:**  
**Implementation Plan (timeline):** 3 year cycle  
**Responsible Individual(s):** MFET Program Champion

**Students will deliver formal presentations using appropriate technology.**

### Program Objective D: Safety/Accident Prevention
### SLO 4.1: Apply safety principles around technical equipment

**Measure:** Safety in lab work  
Direct - Other

**Details/Description:** Evaluation of safety in lab work per rubric  
**Target:**  
**Implementation Plan (timeline):** 3 year cycle  
**Responsible Individual(s):** MFET Program Champion

### SLO 4.2: Demonstrate knowledge of safety principles

**Measure:** Safety in the internship  
Direct - Other

**Details/Description:** Evaluation of safety in the internship per rubric  
**Target:**  
**Implementation Plan (timeline):** 3 year cycle  
**Responsible Individual(s):** MFET Program Champion

### SLO 4.3: Safety principles in supervision & mgt. of others

**Measure:** Semester project rubric  
Direct - Student Artifact

**Details/Description:** Evaluation of performance per semester project rubric  
**Target:**  
**Implementation Plan (timeline):** 3 year cycle  
**Responsible Individual(s):** MFET Program Champion

### Program Objective E: Utilize quality concepts

Students will utilize quality concepts.

### SLO 5.1: Understand quality concerns in manufacturing

**Measure:** Exams and homework  
Direct - Student Artifact

**Details/Description:** Evaluation of performance per semester exams and homework  
**Target:**  
**Implementation Plan (timeline):** 3 year cycle  
**Responsible Individual(s):** MFET Program Champion

### SLO 5.2: Apply quality concepts

**Measure:** Exams and homework  
Direct - Student Artifact

**Details/Description:** Evaluation of performance per semester exams and homework  
**Target:**  
**Implementation Plan (timeline):** 3 year cycle  
**Responsible Individual(s):** MFET Program Champion

### SLO 5.3: Implement concepts of continuous improvement

**Measure:** In-class project  
Direct - Student Artifact

Students will implement...
# Program Objectives

## Program Objective F: Engage in life-long learning

Students will engage in life-long learning.

<table>
<thead>
<tr>
<th>SLO 6.1: Demonstrate a desire for life-long learning</th>
<th>Measure: Performance during internship</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students will demonstrate a desire for life-long learning.</td>
<td>Direct - Other</td>
</tr>
</tbody>
</table>

### Details/Description:
Evaluation of performance during internship

### Target:
Yearly

### Implementation Plan (timeline):
3 year cycle

### Responsible Individual(s):
MFET Program Champion

## Assessment Findings

### Finding per Measure

### BS in Manufacturing Engineering Technology

## Program Objective A: Mastery of knowledge and tools

### SLO 1.1: Apply CAD principles

Students will apply CAD principles.

### Measure: Class project

### Direct: Student Artifact

#### Details/Description:
Evaluation of in class project per rubric

#### Target:
Yearly

#### Implementation Plan (timeline):
3 year cycle

#### Responsible Individual(s):
MFET Program Champion

#### Findings for Class project

No Findings Added

### SLO 1.2: Plan/execute production

Students will plan and execute production.

### Measure: Class project

### Direct: Student Artifact

#### Details/Description:
Evaluation of in class project per rubric

#### Target:
Yearly

#### Implementation Plan (timeline):
3 year cycle

#### Responsible Individual(s):
MFET Program Champion

#### Findings for Class project

No Findings Added
### SLO 1.3: Utilize control systems in automated manufacturing

**Measure:** Lab work  
Direct - Other

**Details/Description:** Evaluation of lab work in class per rubric  
**Target:**  
**Implementation Plan (timeline):** 3 year cycle  
**Responsible Individual(s):** MFET Program Champion

**Findings** for Lab work

No Findings Added

### SLO 1.4: Utilize computers and software for design

**Measure:** Class project  
Direct - Student Artifact

**Details/Description:** Evaluation of in class project per rubric  
**Target:**  
**Implementation Plan (timeline):** 3 year cycle  
**Responsible Individual(s):** MFET Program Champion

**Findings** for Class project

No Findings Added

### Program Objective B: Effective Problem Solving

### SLO 2.1: Use scientific methods to solve problems

**Measure:** Semester project rubric  
Direct - Student Artifact

**Details/Description:** Evaluation of performance per semester project rubric  
**Target:**  
**Implementation Plan (timeline):** 3 year cycle  
**Responsible Individual(s):** MFET Program Champion

**Findings** for Semester project rubric

No Findings Added

### SLO 2.3: Interact with team members

**Measure:** Class project  
Direct - Student Artifact

**Details/Description:** Evaluation of in class project per rubric  
**Target:**  
**Implementation Plan (timeline):** 3 year cycle  
**Responsible Individual(s):** MFET Program Champion

No Findings Added
**Program Objective C: Effective communication**

**SLO 3.1: Exhibit good verbal communication skills**

- **Measure:** Class project  
  Direct - Student Artifact

  - **Details/Description:** Evaluation of in class project per rubric
  - **Target:**  
    - **Implementation Plan (timeline):** 3 year cycle
  - **Responsible Individual(s):** MFET Program Champion

  **Findings for Class project**
  No Findings Added

**SLO 3.2: Demonstrate fluency in written communication**

- **Measure:** Internship rubric  
  Direct - Other

  - **Details/Description:** Evaluation of internship per rubric
  - **Target:**  
    - **Implementation Plan (timeline):** 3 year cycle
  - **Responsible Individual(s):** MFET Program Champion

  **Findings for Internship rubric**
  No Findings Added

**SLO 3.3: Deliver formal presentations using technology**

- **Measure:** Class project  
  Direct - Student Artifact

  - **Details/Description:** Evaluation of in class project per rubric
  - **Target:**  
    - **Implementation Plan (timeline):** 3 year cycle
  - **Responsible Individual(s):** MFET Program Champion

  **Findings for Class project**
  No Findings Added

**Program Objective D: Safety/Accident Prevention**

**SLO 4.1: Apply safety principles around technical equipment**

- **Measure:** Safety in lab work  
  Direct - Other
### Students will apply safety principles around technical equipment and processes.

<table>
<thead>
<tr>
<th><strong>Details/Description:</strong></th>
<th>Evaluation of safety in lab work per rubric</th>
</tr>
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<tbody>
<tr>
<td><strong>Target:</strong></td>
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<tr>
<td><strong>Implementation Plan (timeline):</strong></td>
<td>3 year cycle</td>
</tr>
<tr>
<td><strong>Responsible Individual(s):</strong></td>
<td>MFET Program Champion</td>
</tr>
</tbody>
</table>

**Findings for Safety in lab work**

*No Findings Added*

### SLO 4.2: Demonstrate knowledge of safety principles

Students will demonstrate knowledge of safety principles in the planning process.

<table>
<thead>
<tr>
<th><strong>Measure:</strong></th>
<th>Safety in the internship</th>
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</thead>
<tbody>
<tr>
<td><strong>Direct:</strong></td>
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<td>MFET Program Champion</td>
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</tbody>
</table>

**Findings for Safety in the internship**

*No Findings Added*

### SLO 4.3: Safety principles in supervision & mgt. of others

Students will demonstrate knowledge of safety principles in supervision and management of others.

<table>
<thead>
<tr>
<th><strong>Measure:</strong></th>
<th>Semester project rubric</th>
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<table>
<thead>
<tr>
<th><strong>Details/Description:</strong></th>
<th>Evaluation of performance per semester project rubric</th>
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<td><strong>Implementation Plan (timeline):</strong></td>
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<td><strong>Responsible Individual(s):</strong></td>
<td>MFET Program Champion</td>
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</table>

**Findings for Semester project rubric**

*No Findings Added*

### Program Objective E: Utilize quality concepts

Students will utilize quality concepts.

### SLO 5.1: Understand quality concerns in manufacturing

Students will understand quality concerns in manufacturing.

<table>
<thead>
<tr>
<th><strong>Measure:</strong></th>
<th>Exams and homework</th>
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<tbody>
<tr>
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<td>Student Artifact</td>
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<th><strong>Details/Description:</strong></th>
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<td><strong>Implementation Plan (timeline):</strong></td>
<td>3 year cycle</td>
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<tr>
<td><strong>Responsible Individual(s):</strong></td>
<td>MFET Program Champion</td>
</tr>
</tbody>
</table>

**Findings for Exams and homework**

*No Findings Added*
SLO 5.2: Apply quality concepts
Students will apply quality concepts.

**Measure:** Exams and homework
Direct - Student Artifact

**Details/Description:** Evaluation of performance per semester exams and homework

**Implementation Plan (timeline):** 3 year cycle

**Responsible Individual(s):** MFET Program Champion

**Findings** for Exams and homework

No Findings Added

SLO 5.3: Implement concepts of continuous improvement
Students will implement concepts of continuous improvement.

**Measure:** In-class project
Direct - Student Artifact

**Details/Description:** Evaluation of in-class project

**Implementation Plan (timeline):** Yearly

**Responsible Individual(s):** MFET Program Champion

**Findings** for In-class project

No Findings Added

Program Objective F: Engage in life-long learning
Students will engage in life-long learning.

SLO 6.1: Demonstrate a desire for life-long learning
Students will demonstrate a desire for life-long learning.

**Measure:** Performance during internship
Direct - Other

**Details/Description:** Evaluation of performance during internship

**Implementation Plan (timeline):** 3 year cycle

**Responsible Individual(s):** MFET Program Champion

**Findings** for Performance during internship

No Findings Added

Overall Recommendations

No text specified

Overall Reflection

No text specified
Program Outcomes Assessment
BS in Manufacturing Engineering Technology
2017-2018 Assessment Cycle

Assessment Plan

Outcomes and Measures

BS in Manufacturing Engineering Technology

Program Objective B: Effective Problem Solving

SLO 2.2: Use management principles to solve problems

Students will use management principles to solve problems.

- **Measure**: In class project
  - Direct - Student Artifact

  - **Details/Description**: Evaluation of in class project per rubric
  - **Target**:
  - **Implementation Plan (timeline)**: 3 year cycle
  - **Responsible Individual(s)**: MFET Program Champion

Program Objective E: Utilize quality concepts

Students will utilize quality concepts.

SLO 5.3: Implement concepts of continuous improvement

Students will implement concepts of continuous improvement.

- **Measure**: In-class project
  - Direct - Student Artifact

  - **Details/Description**: Evaluation of in-class project
  - **Target**:
  - **Implementation Plan (timeline)**: Yearly
  - **Responsible Individual(s)**: MFET Program Champion

Assessment Findings

Finding per Measure

BS in Manufacturing Engineering Technology

Program Objective B: Effective Problem Solving

SLO 2.2: Use management principles to solve problems

Students will use management principles to solve problems.

- **Measure**: In class project
  - Direct - Student Artifact

  - **Details/Description**: Evaluation of in class project per rubric
  - **Target**:
  - **Implementation Plan (timeline)**: 3 year cycle
  - **Responsible Individual(s)**: MFET Program Champion

  **Findings** for In class project
Program Objective E: Utilize quality concepts
Students will utilize quality concepts.

SLO 5.3: Implement concepts of continuous improvement
Students will implement concepts of continuous improvement.

Measure: In-class project
Direct - Student Artifact

Details/Description: Evaluation of in-class project
Target:
Implementation Plan (timeline): Yearly
Responsible Individual(s): MFET Program Champion

Findings for In-class project
No Findings Added

Overall Recommendations
No text specified

Overall Reflection
No text specified
# 2018-2019 Assessment Cycle

## Assessment Plan

| Outcomes and Measures |

## Assessment Findings

<table>
<thead>
<tr>
<th>Finding per Measure</th>
<th>Overall Recommendations</th>
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<tbody>
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## Overall Reflection

<table>
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<tr>
<td>No text specified</td>
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</table>
2019-2020 Assessment Cycle

Assessment Plan

Assessment Findings
Appendix

- **A. Manufacturing Engineering Technology** (Curriculum Map)
- **B. Self-Study Report - March 2010** (Word Document (Open XML))
- **C. Advanced Manufacturing Management Standards** (Word Document (Open XML))
- **D. Substantiating evidence for Final Paper** (Word Document (Open XML))
- **E. Substantiating evidence for In Class Exam** (Word Document (Open XML))
- **F. Substantiating evidence for In Class Project** (Word Document (Open XML))
- **G. ATMAE CMS Distribution.xlsx** (Excel Workbook (Open XML))
- **H. CMS data.xlsx** (Excel Workbook (Open XML))
**Program Outcome measurement plan for AMM**

Fauber

Summary of courses where evaluation will take place:

MET 203(2); TMGT 471(1); MFG 370(1); ECT 480(1); TMGT 492(4); TMGT 478(2); TMGT 351(3); TMGT 374(1); TMGT 473(2)

### Outcome A - Mastery of knowledge & tools

<table>
<thead>
<tr>
<th>Performance Criteria</th>
<th>Strategies</th>
<th>Assessment Methods</th>
<th>Source of Assessment</th>
<th>Time of Data Collection</th>
<th>Assessment Coordinator</th>
<th>Evaluation of Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Apply CAD principles</td>
<td>MET 103, 203</td>
<td>Evaluation of in class project per rubric</td>
<td>MET 203</td>
<td>F2010, F2013 (3 year cycle)</td>
<td>AMM Program Champion</td>
<td>AMM Program Team</td>
</tr>
<tr>
<td>2. Plan/execute production</td>
<td>TMGT 131, 351, 374, 471, MFG 225, 370, 371, TMGT 478</td>
<td>Evaluation of in class project per rubric</td>
<td>TMGT 471</td>
<td>F2010, F2013 (3 Year Cycle)</td>
<td>AMM Program Champion</td>
<td>AMM Program Team</td>
</tr>
<tr>
<td>4. Utilize computers and software for design in manufacturing</td>
<td>MET 103, 203, TMGT 351, 478, MFG 376,</td>
<td>Evaluation of in class project per rubric</td>
<td>MET203</td>
<td>F2010, F2013 (3 year cycle)</td>
<td>AMM Program Champion</td>
<td>AMM Program Team</td>
</tr>
</tbody>
</table>
### Outcome B - Effective Problem Solving

<table>
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<tr>
<th>Performance Criteria</th>
<th>Strategies</th>
<th>Assessment Methods</th>
<th>Source of Assessment</th>
<th>Time of Data Collection</th>
<th>Assessment Coordinator</th>
<th>Evaluation of Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Use scientific methods to solve problems</td>
<td>Physical science courses (8hrs); MET103,203; CS151 ECT160,280,281,444,480 MFG 225,370,371,376</td>
<td>Evaluation of performance per semester project rubric</td>
<td>ECT480</td>
<td>Sp2011, Sp2014, (3 year cycle)</td>
<td>AMM Program Champion</td>
<td>AMM Program Team</td>
</tr>
<tr>
<td>2. Use management principles to solve problems</td>
<td>TMGT 374, 351,430,471,478,492, 497</td>
<td>Evaluation of in class project per rubric</td>
<td>TMGT 492</td>
<td>F2010, F2013, (3 year cycle)</td>
<td>AMM Program Champion</td>
<td>AMM Program Team</td>
</tr>
<tr>
<td>3. Interact with team members to communicate and solve problems</td>
<td>MET 329, MFG 370, 371, 376, TMGT 131,473,478, 492, 497</td>
<td>Evaluation of in class project per rubric</td>
<td>TMGT 478</td>
<td>Sp2011, Sp2014, (3 year cycle)</td>
<td>AMM Program Champion</td>
<td>AMM Program Team</td>
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</table>

### Outcome C - Effective communication

<table>
<thead>
<tr>
<th>Performance Criteria</th>
<th>Strategies</th>
<th>Assessment Methods</th>
<th>Source of Assessment</th>
<th>Time of Data Collection</th>
<th>Assessment Coordinator</th>
<th>Evaluation of Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Exhibit good verbal communication skills</td>
<td>TMGT131,351,478,492, 497</td>
<td>Evaluation of in class project per rubric</td>
<td>TMGT 492</td>
<td>F2010, F2013, (3 year cycle)</td>
<td>AMM Program Champion</td>
<td>AMM Program Team</td>
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<tr>
<td>2. Demonstrate fluency in written communication</td>
<td>ENG101,105,107,305T; TMGT131,351,374,430, 471,473,478,492,497; MFG 225, 370,371,376; MET 329; ECT 160</td>
<td>Evaluation of internship per rubric</td>
<td>TMGT 351</td>
<td>F2010, F2013, (3 year cycle)</td>
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<td>AMM Program Team</td>
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<tr>
<td>3. Deliver formal presentations using appropriate technology</td>
<td>ENG101,105,107,305T; TMGT131,351,374,430, 478,492,497;</td>
<td>Evaluation of in class project per rubric</td>
<td>TMGT 492</td>
<td>Sp2011, Sp2014, (3 year cycle)</td>
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<td>AMM Program Team</td>
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### Outcome D - Safety/Accident Prevention

<table>
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<th>Performance Criteria</th>
<th>Strategies</th>
<th>Assessment Methods</th>
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<th>Time of Data Collection</th>
<th>Assessment Coordinator</th>
<th>Evaluation of Results</th>
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</thead>
<tbody>
<tr>
<td>Apply safety principles around technical equipment and processes</td>
<td>ECT 160, MFG 225, 370, 371, 376, TMGT 351, 478, MET 329, HLTH 318</td>
<td>Evaluation of safety in lab work per rubric</td>
<td>MFG 370 or MFG 371</td>
<td>F2010, F2013, (3 year cycle)</td>
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<td>AMM Program Team</td>
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<td>Apply knowledge of safety principles in the workplace</td>
<td>MET 103, 329, TMGT 351, 374, 478, 492, HLTH 318</td>
<td>Evaluation of safety in the internship per rubric</td>
<td>TMGT 351</td>
<td>F2010, F2013, (3 year cycle)</td>
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<td>Demonstrate knowledge of safety principles in supervision and mgt. of others</td>
<td>TMGT 351, 374, 478, 492, HLTH 318</td>
<td>Evaluation of performance per semester project rubric</td>
<td>TMGT 492</td>
<td>Sp2011, Sp2014, (3 year cycle)</td>
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### Outcome E - Utilize quality concepts

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<tr>
<td>1. Understand quality concerns in manufacturing</td>
<td>TMGT 131, 351, 374, 471,473,478; MFG 225,370,371,376; ECT 160, 444; MET 329</td>
<td>Evaluation of performance per semester project rubric</td>
<td>TMGT 473</td>
<td>Sp2011, Sp2014, (3 year cycle)</td>
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<td>AMM Program Team</td>
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<td>2. Apply quality concepts</td>
<td>TMGT 374, 473, 478; MFG 225,370,371,376; MET 329; ECT 444, 480</td>
<td>Evaluation of performance per semester project rubric</td>
<td>TMGT 473</td>
<td>Sp2011, Sp2014, (3 year cycle)</td>
<td>AMM Program Champion</td>
<td>AMM Program Team</td>
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<td>3. Implement concepts of continuous improvement</td>
<td>MFG 225,370,371,376 TMGT131,374,478,492</td>
<td>Evaluation of in-class project</td>
<td>TMGT 374</td>
<td>Sp2011, Sp2014, (3 year cycle)</td>
<td>AMM Program Champion</td>
<td>AMM Program Team</td>
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## Outcome F - Engage in Lifelong Learning

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<th>Evaluation of Results</th>
</tr>
</thead>
</table>
INDIANA STATE UNIVERSITY
COLLEGE OF TECHNOLOGY

ACCREDITATION SELF-STUDY REPORT

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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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      b. Full-time
      c. Part-time
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3. Names of Other Departments in Administrative Units  
4. Names of Program Heads  
5. Names and Titles of Others with Program Administration and/or Coordination Responsibility  
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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
# Request for Initial Accreditation or Reaccreditation Visit

**Please Type Information**

<table>
<thead>
<tr>
<th>1. <strong>Institution</strong></th>
<th>Indiana State University</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Institution Address</strong></td>
<td>Terre Haute, IN 47809</td>
</tr>
<tr>
<td><strong>Head of Institution</strong></td>
<td>Dr. Daniel Bradley</td>
</tr>
<tr>
<td><strong>Telephone</strong></td>
<td>812-237-4000</td>
</tr>
<tr>
<td><strong>Fax</strong></td>
<td>812-237-7948</td>
</tr>
<tr>
<td><strong>Head of Program</strong></td>
<td>Dr. Bradford Sims</td>
</tr>
<tr>
<td><strong>Telephone</strong></td>
<td>812-237-3166</td>
</tr>
<tr>
<td><strong>Fax</strong></td>
<td>812-237-3733</td>
</tr>
<tr>
<td><strong>Contact Person</strong></td>
<td>Dr. Jeffrey McNabb</td>
</tr>
<tr>
<td><strong>Title</strong></td>
<td>Assoc. Dean</td>
</tr>
<tr>
<td><strong>Mailing Address</strong></td>
<td>ISU College of Technology, Terre Haute, IN 47809</td>
</tr>
<tr>
<td><strong>Telephone</strong></td>
<td>812-237-2987</td>
</tr>
<tr>
<td><strong>Fax</strong></td>
<td>812-237-2823</td>
</tr>
<tr>
<td><strong>Email Address</strong></td>
<td><a href="mailto:jmcmnabb@indstate.edu">jmcmnabb@indstate.edu</a></td>
</tr>
</tbody>
</table>

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

| 6. **Program Level:** |
| [ ] Associate | [ ] 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:** |
| **Date:** 7/26/09 |
| **Head of Program:** |
| **Date:** 7/24/08 |
| **Institution Contact Person:** |
| **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* 
*G:\UCDATA\UCN\AT\Accreditation\Forms\Certificates\wordaccrreditationrequest.doc*
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)
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,

[Signature]

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

[Signature]

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

JGM/re
Thanks Rick,

Everything you have mentioned looks right. Jeff

---

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

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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

---

This e-mail, including attachments, may include confidential and/or proprietary information, and may be used only by the person or entity to which it is addressed. If the reader of this e-mail is not the intended recipient or his or her authorized agent, the reader is hereby notified that any dissemination, distribution or copying of this e-mail is prohibited. If you have received this e-mail in error, please notify the sender.
The Association of Technology, Management, and Applied Engineering
Notification of Team Assignments and Visitation Dates

A. General Information:

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<th>Type</th>
<th>Level</th>
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<td>X Master Level</td>
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<tr>
<td>Reaccreditation</td>
<td>X Baccalaureate Level</td>
<td>Consultant Visit</td>
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<tr>
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<th>Dr. Jeff McNabb, Associate Dean IT</th>
</tr>
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</tr>
<tr>
<td>Address 1:</td>
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<tr>
<td>Address 2:</td>
<td>Jeff McNabb will coordinate with Safety</td>
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<table>
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<tr>
<th>City, State, &amp; Zip Code</th>
<th>Terre Haute, IN 47809</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone Number</td>
<td>812-237-2987</td>
</tr>
<tr>
<td>Email Address</td>
<td><a href="mailto:jmcmnabb@indstate.edu">jmcmnabb@indstate.edu</a></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Team Chair:</th>
<th>Dr. Verna M. Fitzsimmons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employer:</td>
<td>Kent State University</td>
</tr>
<tr>
<td>Address 1:</td>
<td>Applied Business &amp; Technology</td>
</tr>
<tr>
<td>Address 2:</td>
<td>P. O. Box 5190</td>
</tr>
<tr>
<td>City, State, &amp; Zip:</td>
<td>Kent, OH 44242</td>
</tr>
<tr>
<td>Home Telephone:</td>
<td></td>
</tr>
<tr>
<td>Business Telephone:</td>
<td>330-672-7064</td>
</tr>
<tr>
<td>Email Address:</td>
<td><a href="mailto:vfitzsim@kent.edu">vfitzsim@kent.edu</a></td>
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<tr>
<th>Team Member 2:</th>
<th>Mr. Todd Myers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employer:</td>
<td>Ohio University</td>
</tr>
<tr>
<td>Address 1:</td>
<td>Rm 124B, Stocker Center</td>
</tr>
<tr>
<td>Address 2:</td>
<td></td>
</tr>
<tr>
<td>City, State, &amp; Zip:</td>
<td>Athens, OH 45701-2979</td>
</tr>
<tr>
<td>Home Telephone:</td>
<td></td>
</tr>
<tr>
<td>Business Telephone:</td>
<td>(740) 593-1455</td>
</tr>
<tr>
<td>Email Address:</td>
<td><a href="mailto:myersr2@ohio.edu">myersr2@ohio.edu</a></td>
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<table>
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<tr>
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<th>Dr. Mandara Savage, CSIT</th>
</tr>
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<tbody>
<tr>
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<td>Southern Illinois Univ-Carbondale</td>
</tr>
<tr>
<td>Address 1:</td>
<td>Technology</td>
</tr>
<tr>
<td>Address 2:</td>
<td>Mailcode 6603</td>
</tr>
<tr>
<td>City, State, &amp; Zip:</td>
<td>Carbondale, IL 62901-6603</td>
</tr>
<tr>
<td>Home Telephone:</td>
<td></td>
</tr>
<tr>
<td>Business Telephone:</td>
<td>618-536-3396</td>
</tr>
<tr>
<td>Email Address:</td>
<td><a href="mailto:msavage@engr.siu.edu">msavage@engr.siu.edu</a></td>
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<table>
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<tr>
<th>Team Member 4</th>
<th>Dr. Jess Godbey</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Jacksonville State Univ.</td>
</tr>
<tr>
<td>Address 1:</td>
<td>134 Ayers Hall</td>
</tr>
<tr>
<td>Address 2:</td>
<td>700 Pelham Road North</td>
</tr>
<tr>
<td>City, State, &amp; Zip:</td>
<td>Jacksonville, AL 36265</td>
</tr>
<tr>
<td>Home Telephone:</td>
<td></td>
</tr>
<tr>
<td>Business Telephone:</td>
<td>(256) 782-5080</td>
</tr>
<tr>
<td>Email Address:</td>
<td><a href="mailto:jgodbey@jsu.edu">jgodbey@jsu.edu</a></td>
</tr>
</tbody>
</table>

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

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.
Advanced Manufacturing Management ATMAE Standard

6.16 Assessment

(5) Compilation of the results of the assessment measures:

Outcome A: Mastery of knowledge & tools

Performance Criteria 3: Utilize control systems in automated manufacturing

Source of assessment: TMGT 478

Students in TMGT 478 must utilize their knowledge of the MasterCam program to communicate with the Thermwood CNC router in order to complete the project for the class. This application of knowledge has always been successful until the last two semesters. It is apparent that there is a gap between what the students need to know and what they do know in order to successfully utilize the control systems necessary to program the CNC machine and complete this project. The results of this assessment have been communicated to program directors to analyze and determine the best course of action to rectify this problem.

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

The results of this analysis have been communicated to the program directors and it was discovered that the ECT class where MasterCam had been formerly been introduced had recently omitted that from the curriculum. Upon further discussion it was realized that the MFG 376 class where MasterCam was practiced and CNC controls were practiced, had been cancelled by upper administration due to “under-enrollment.” The discussion will center around solutions to this problem such as requiring the introduction in the ECT 280 class, the practice in the MFG 370 and MFG 376 classes, to improve the program and the students’ knowledge and skills.

Outcome B: Effective Problem Solving

Performance Criteria 2: Use management principles to solve problems

Source of Assessment: TMGT 492

Students in TMGT 492 are given an assignment known as the Student Lead Experiential Activity. The assignment requires students to apply management principles to solve the problem of facilitating the learning of a supervisory principle. Therefore, the teams of students—usually 5—must communicate, plan, organize, participate, give feedback, and demonstrate to the rest of the class they understand a supervisory principle and can solve the complex problem of how to inform the class of the principle.

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

The results of this analysis indicate that most students still require coaching and an iterative approach is best when requiring the execution of a complex assignment. The program needs to require more complex, interactive, and group assignments to give the students more practice working with others to solve problems because these skills will benefit them in the workplace.

Outcome C: Effective Communication

Performance Criteria 1: Exhibit good verbal communication skills
Students in TMGT 492 are required to make two formal presentations for which their verbal communication skills are held to performance standards. They are provided with written rubrics as well as DVD examples of presentations made by former students. The rubric requires articulation, loudness, confidence with content, and professional language. The students are coached by the professor prior to the presentations to clarify any requirements and answer any questions.

**Performance Criteria 2: Demonstrate fluency in written communication**

As I mentioned, I believe AMM students are able to demonstrate fluency in written communication and feel good that the program is preparing students with this particular skill to meet our program outcome. I am confirming that we are meeting this part of the program outcome.

Outcome D: Safety/Accident Prevention

**Performance Criteria 2: Apply knowledge of safety principles in the workplace**

I will be making adjustments to my assignments for TMGT 351 in order to better determine if students are achieving the skills to apply knowledge of safety principles in the workplace. At the end of this semester we can assemble the team to discuss the results and decide what changes, if any, need to be made to the program.
Outcome E: Utilize Quality Concepts

Source of Assessment: TMGT 473

Performance Criteria 1: Understand quality concerns in manufacturing

Students are required to use a text written by Besterfield who uses multiple examples from manufacturing. These examples help the students understand how quality concepts impact the choices manufacturing engineers make regarding materials, processes, tools, and controls.

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

The assessment methods utilized in TMGT 473 include homework assignments over concepts and mid-term and final exams. The AMM team will be discussing other methods to assess outcomes and close the link to improve the performance of students in the program.

Outcome F: Engage in Lifelong Learning

Performance Criteria 1: Demonstrate a desire for lifelong learning

From the information I had, I was unable to determine if students are doing well on this item. I am certain they are, but have no way of garnering this information from the assignments that are submitted. Therefore, I will be making some changes to the assignments in order to gather the information I need to make a better determination.

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

I will be making adjustments to my assignments for TMGT 351 in order to better determine if students are demonstrating a desire to be lifelong learners. At the end of this semester we can assemble the team to discuss the results and decide what changes, if any, need to be made to the program.
Standards for Accreditation
Baccalaureate Degree Programs

Technology Management
Department

Advanced Manufacturing Management
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
Ms. Beth Fauber, Associate Professor, Department of Technology Management
Dr. Gordon Minty, Professor, Department of Technology Management
Other faculty, staff, and students contributed materials as well.
Chair, Department of Electronics, Computer and Mechanical Engineering Technology
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.
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 Advanced Manufacturing Management program prepares students for careers as technical managers in manufacturing and allied fields. The program emphasizes an understanding of the technology utilized in manufacturing processes and compliments this technical understanding with practice using the managerial skills necessary in the modern 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 Advanced Manufacturing Management 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 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. An example of these companies include the following:
  Doncasters Combustion Systems
  Tredegar, Inc.
  GE Unison
  SONY - Digital Audio Disc Corporation
  Clabber Girl

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 Advanced Manufacturing Management program places an emphasis on each student developing an understanding of the basic technology utilized in manufacturing and blending this understanding with managerial skills necessary for success in today’s work environment.

The short-range goals are:
  a. to conduct a meeting of the advisory committee during the Spring and Fall 2010 semesters and keep accurate minutes,
  b. to develop a plan to retain and/or increase the number of students enrolled in the program,
  c. to review and/or develop articulation agreements with selected community colleges,
  d. to make better connections with industry,

Long-range goals are:
  a. to continue work to provide excellence in instruction at all levels,
  b. to continue to update and enhance laboratories in the Technology Center,
  c. to conduct yearly meetings of the advisory committee and keep accurate minutes.
  d. to continue seeking the support of industry through donations of funds, supplies, equipment and/or services.
  e. to continue seeking the support of industry for expanded opportunities in cooperative education,
  f. to continue to provide effective student advisement in relation to general education requirements,
  g. to continue to provide effective student advisement in relation to requirements for the major,
  h. to continue identifying areas that need repair and/or updating of equipment.
  i. to continue urging faculty to update their professional, educational and technical skills,
to seek the advice and implement the suggestions of the Advisory Board members.

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

- follow the University procedure to enact changes to the curriculum,
- continue membership and participation in professional organizations.
- participate in appropriate seminars, conferences, and/or workshops to update professional, educational, and technical skills.
- participate in departmental, school, and university committees,
- attend and participate in departmental faculty meetings.
- encourage students and alumni to participate in evaluation techniques such as questionnaires and club meetings to discuss their concerns with their advisor or department chair,
- participate in outreach activities that involve education, industry and government agencies.
- to better market and advertise the manufacturing program.
- continue to pursue in-kind donations to provide up-to-date laboratories,
- continue to develop relationships with local industries by inviting guest speakers and conducting field trips,
- staff each program with sufficient and appropriate faculty.

### 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.

**Advanced Manufacturing Management**

#### 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 Advanced Manufacturing Management program is a program of study that leads to the 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 formal options, specializations, or concentrations.

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 Advanced Manufacturing Management program reflects the current technology and management of industry. This is evidenced in the laboratory exercises and teaching methodologies. Furthermore, students in classes from 100 through 400 levels are taken on field experiences to view first-hand the current technology utilized by industries. The faculty, through professional organizations, remain cognizant of current issues and practices in modern manufacturing 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. Presented is an analysis of the Advanced Manufacturing Management program requirements in relation to ATMAE requirements. Please see the following table:

6.3.5 Foundation Requirements: B. S. Degree in Advanced Manufacturing Management

<table>
<thead>
<tr>
<th>Table 6.1</th>
<th>Course Name</th>
<th>Course #</th>
<th>ISU REQ.</th>
<th>ATMAE REQ.</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Education</td>
<td>English Composition</td>
<td>ENG 101 &amp; 105 or ENG 107</td>
<td>3 - 6</td>
<td>18-36</td>
</tr>
<tr>
<td>General Education</td>
<td>Technical Writing</td>
<td>ENG 305 T</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>General Education</td>
<td>Communication</td>
<td>COM 101</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>General Education</td>
<td>Physical Education</td>
<td>PE 101 &amp; 101 L</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Social/Behavioral Studies</td>
<td>Approved List</td>
<td></td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Literary/Arts/Philosophical Studies</td>
<td>Approved List</td>
<td></td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Historical Studies</td>
<td>Approved List</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Multicultural Studies</td>
<td>Approved List</td>
<td></td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Foreign Language</td>
<td>H.S. credit or Approved List</td>
<td></td>
<td>0 - 6</td>
<td></td>
</tr>
<tr>
<td>General Education Capstone</td>
<td>Approved List</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Mathematics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>College Algebra &amp; Trig</td>
<td>MATH 115 or</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Algebra &amp; Graphical Analysis</td>
<td>MATH 111 &amp; MET 215</td>
<td></td>
<td>Or 6</td>
<td></td>
</tr>
<tr>
<td>Information Technology Literacy</td>
<td>TMGT 195</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Computer Science</td>
<td>CS 151</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Physical Sciences</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Physics</td>
<td>Physics 101</td>
<td></td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

6
### 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. In TMGT 478, Industrial Organization and Functions, technical concepts of design and manufacturing are assumed to be known. This course is treated as a capstone course. 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>
<thead>
<tr>
<th>FALL</th>
<th>SPRING</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Semester I</strong></td>
<td><strong>Semester II</strong></td>
</tr>
<tr>
<td>ENG 101</td>
<td>3 Basic</td>
</tr>
<tr>
<td>COMM 101</td>
<td>3 Basic</td>
</tr>
<tr>
<td>MATH 115</td>
<td>3 Basic</td>
</tr>
<tr>
<td>Course Code</td>
<td>Credit Hours</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------</td>
</tr>
<tr>
<td>PE 101 &amp; L</td>
<td>2</td>
</tr>
<tr>
<td>TMGT 131</td>
<td>2</td>
</tr>
<tr>
<td>TMGT 195 (IT Lit)</td>
<td>3</td>
</tr>
</tbody>
</table>

|            | 16 hrs       |            | 15 hrs       | 31           |

**Semester III**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credit Hours</th>
<th>Category</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign Lang 101</td>
<td>3</td>
<td>Basic</td>
<td>Foreign Language 102</td>
<td>3</td>
</tr>
<tr>
<td>MFG 225</td>
<td>3</td>
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<td>ECT 280</td>
<td>3</td>
</tr>
<tr>
<td>ECT 281</td>
<td>3</td>
<td></td>
<td>LAPS: LL</td>
<td>3 Gen Ed</td>
</tr>
<tr>
<td>Physics 101, L (Gen Ed)</td>
<td>4</td>
<td>S &amp; M</td>
<td>MET 203</td>
<td>3</td>
</tr>
<tr>
<td>MFG 370</td>
<td>3</td>
<td></td>
<td>TMGT 351</td>
<td>3</td>
</tr>
</tbody>
</table>

|            | 16 hrs       |            | 15 hrs       | 62           |

**Semester V**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credit Hours</th>
<th>Category</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MET 329</td>
<td>3</td>
<td></td>
<td>(HITH 318) Elective</td>
<td>3</td>
</tr>
<tr>
<td>MFG 371</td>
<td>3</td>
<td></td>
<td>Multi Cultural USD</td>
<td>3 Gen Ed</td>
</tr>
<tr>
<td>HS: R</td>
<td>3 Gen Ed</td>
<td></td>
<td>MFG 376</td>
<td>3</td>
</tr>
<tr>
<td>TMGT 374</td>
<td>3</td>
<td></td>
<td>Phys Science Elective</td>
<td>3</td>
</tr>
<tr>
<td>LAPS:E (3/400)</td>
<td>3</td>
<td>Gen Ed</td>
<td>ENG 305 T</td>
<td>3 Basic</td>
</tr>
</tbody>
</table>

|            | 15 hrs       |            | 15 hrs       | 92           |

**Semester VII**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credit Hours</th>
<th>Category</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>TMGT 430</td>
<td>1</td>
<td></td>
<td>Elective (300/400 level)</td>
<td>1</td>
</tr>
<tr>
<td>MCS: IC</td>
<td>3 Gen Ed</td>
<td></td>
<td>Elective (300/400 level)</td>
<td>3</td>
</tr>
<tr>
<td>ECT 480 or ECT 444</td>
<td>3</td>
<td></td>
<td>Capstone (300/400 level)</td>
<td>3</td>
</tr>
<tr>
<td>TMGT 471</td>
<td>3</td>
<td></td>
<td>TMGT 497</td>
<td>3</td>
</tr>
<tr>
<td>TMGT 473</td>
<td>3</td>
<td></td>
<td>TMGT 478</td>
<td>3</td>
</tr>
<tr>
<td>TMGT 492</td>
<td>3</td>
<td></td>
<td>SBS:E (3/400)</td>
<td>3 Gen Ed</td>
</tr>
</tbody>
</table>

|            | 16 hrs       |            | 16 hrs       | 124          |

Program = Black  
Basic Studies/ Gen Ed = Blue  
Electives = Green  
Lib. Studies/Gen Ed = Red

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 225: Apply mathematics to determine % elongation in tensile strength tests. Apply principles of chemistry when studying atomic bonding of metals, lattice and crystalline structures, and grain boundaries.

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 376: Apply mathematics in determining Cartesian coordinates, tool path, feeds, speeds, depth of cut, etc.

TMGT 374: Calculations of task time requirements

TMGT 478: Applications of mathematics and science as necessary for implementation of processes required to complete projects in the capstone course.

ECT 160 and MET 103 and 329 are courses where 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:

MET 103: Computer aided design fundamentals
MET 203: Intro to Solid Modeling
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
MFG 376: NC and CNC programming, for milling, turning, EDM application; MasterCam software for generating tool path.

TMGT 374: Use of computer program to estimate work standards
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.

ECT 280: Control software for robotics
ECT 281: Control software for robotics
ECT 444: Application software for PLC’s
ECT 480: Application software for robotics and automation

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

The General Education curricula focus specifically on communications in the COM 101 course, and includes oral and written work in all courses counted as general education. The ENG 305T is tailored to the needs of the technology students, and emphasis is placed on writing technical reports.

The integration of oral presentations and technical report writing is evident in many of the Manufacturing Technology courses as described below.
TMGT 131: In 2001 the curriculum of the introduction to technology course TMGT 131, was revitalized with a focus on the eight dimensions identified as most important in the professional development of the technology student. One of those dimensions was Communication. To this end, students are required to make several technical presentations, are required to use Power Point to enhance the professionalism of their presentation, and are required to accompany their oral presentation with a written technical report. The presentations are video taped and students review and critique the CD of his or her presentations.

TMGT 492: As a final project in some 492 classes, students are required to form “Consulting Teams” and work together to make recommendations to a company concerning technical and management concerns. Students practice their team work abilities while planning, practicing, and presenting their conclusions. Each consulting team is required to make a professional presentation using Power Point or other presentation applications. A final written technical report is required of this project.

TMGT 497: The purpose of the class is to give students experience using team problem solving techniques. The class is structured so each student has opportunities to work, first with a partner, then with a team, to investigate and prepare presentations to the rest of the class. The students learn not only problem solving techniques, but how to work in groups and teams, how to make presentations, and how to write technical reports describing the process and their results.

TMGT 478: Although the catalogue name for this course is Industrial Organization and Function, it is known by everyone as SIMCO, because it simulates a Manufacturing company. Each semester students assume roles as members of the organization in an attempt to make products to specifications within a budget and to a schedule. Students are placed in interest groups and investigate the functions of an organization, such as the design function, the manufacturing function, the quality function, etc. and make formal technical presentations to the rest of the class. This then becomes the basis for their expertise and their placement in the manufacturing function of the class. The formal technical papers each student writes as part of their presentation, become the resource and the knowledge base for the class. Therefore, each student is dependent on each other student for information and understanding of the functions of the organization. It could be considered a capstone technical writing and presentation experience in the capstone course. The students are each given written and verbal feedback regarding both oral presentation skills and their technical writing skills. The presentations are video taped, and each student is required to view his or her performance and submit a written evaluation of what they did well and what they could do differently to improve.

Further evidence of oral presentation and technical report writing can be found in the course resource notebooks.

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

Industrial Tours: Many classes take field trips to local industries to provide the students
with exposure to the broad continuum of experiences available to them in the industrial setting. Some examples include:

TMGT 131: Digital Audio Disc Corporation; Bemis Corporation

MFG 225: Gartland Foundry; AET

TMGT 430: Aisin Break & Chassis; Clabber Girl Baking Powder

Industry Speakers: Many classes invite industry representatives as guest speakers. Often when this occurs, the professor hosting the speaker opens the invitation to the whole College of Technology, so the message can be received by as many students as possible.

Professional Internship Experiences: Industrial experience described to the students as, “One of the most important experiences you can have as a student.” In the TMGT 131 class, students who have completed a cooperative education experience are invited to speak to the class and to describe the value of their experience to the incoming freshmen. The Career Center willingly sends a representative to any class to describe the process involved in registering for a cooperative education experience. Each student in the TMGT 131 class is required to complete the forms required for the cooperative education experience. Furthermore, the Career Center stations a representative in the lobby of the new technology building for four to six hours for one week in the beginning of each semester to register students for co-op experiences. The most recent advertisement is the kiosk in the atrium of the technology building. This kiosk gives information, testimonials, and examples of students who have had a cooperative education experience.

TMGT 351: Every student in the Advanced Manufacturing Management major is informed by their advisor that they are required to complete one “coop” experience, although up to six hours of college credit can be earned by enrolling in an approved cooperative education experience. The student is required to keep a daily journal, write a mid-term and final technical report of their experiences, and the professor of record visits the student’s supervisor to insure all goals are being met.

6.3.11 Competency Identification: Student competencies shall be identified for each Program of study, including all options, which are relevant to the employment opportunities available to graduates.

a. Mastery of knowledge & tools: The student will be able to: Apply CAD principles; Plan/execute production; Utilize control systems in automated manufacturing; Utilize computers and software for design in manufacturing.

b. Effective Problem Solving: The student will be able to: Use scientific methods to solve problems; Use management principles to solve problems; Interact with team members to communicate and solve problems.

c. Effective Communication: The student will be able to: Exhibit good verbal communication skills; Demonstrate fluency in written communication; Deliver formal presentations using appropriate technology.

d. Safety/Accident Prevention: The student will be able to: Apply safety principles around technical equipment and processes; Apply knowledge of safety principles in the workplace; Demonstrate knowledge of safety principles in supervision and management of others.

e. Utilize Quality Concepts: The student will be able to: Understand quality concerns in manufacturing; Apply quality concepts; Implement concepts of continuous improvement.
f. Engage in Lifelong Learning: The student will be able to: Demonstrate a desire for lifelong learning.

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

Internal Competency Validation:

a. The student’s advisor meets with the student to review the goals and expectations and outlines a plan of study to be followed.

b. First year review: During the first year, the student is expected to have successfully completed the introductory course TMGT 131, to have fulfilled the requirements for IT literacy (TMGT 195) as well as the first sequence in the requirement for math literacy (MATH 111). The student must maintain a 2.0 GPA.

c. Second year review: The student must maintain a GPA of 2.0 or better in MFG 225, ECT 280, and MET 203.

d. Third year review: The student must maintain a GPA of 2.0 or better in MFG 370, 371, 376, HLTH 318, and ENG 305T.

e. Fourth year review: Successful completion of the capstone course TMGT 478, Industrial Organization and Functions, exit interview conducted by advisor or as a written document in senior seminar class TMGT 430. Student is given the opportunity to identify the strengths and areas of needed improvement in the program.

Post Graduation Assessment:

a. Alumni survey: A survey instrument is sent to graduates asking them to evaluate the level of preparation their program gave them.

b. Employer survey: A survey instrument is sent to employers of program graduates asking them to rate the level of satisfaction with the level of skill of recent graduates.

c. Graduate Placement: The University Career Center gathers data regarding placement and salary ranges.

d. Industrial Advisory Board: The Board meets with the TMGT faculty once each semester to give their perspective and point of view regarding program vitality and currency.

6.3.13 Program Development Revision and Evaluation: Program of study development, revision and evaluation shall involve currently enrolled students, faculty, program graduates, and representative employers.

The Department of Technology Management employs a four-step process in the planning and development of new curriculum areas. The initial step in the process is a
review of current literature and existing programs similar in nature across the nation. This review or “needs analysis” is completed by interested faculty members within the Department.

If the initial investigation suggests that a curricular area is warranted, then the second step is for the formation of a formal committee to develop an initial curriculum proposal. During this step, committee members do additional research, both literature and industrial-based, to ascertain the needs of current industry.

Upon completion of the initial curriculum proposal, step three involves a review of the proposal by both industrial consultants and also industrial advisory committees. At this point, the proposal is put into final form for the fourth step in the process.

Step four consists of the required procedures for new curriculum approval at both the University and State level. This involves approval by the College of Technology’s Curriculum and Academic Affairs Committee and the Faculty Council. Upon approval at the school level, the proposal is forwarded to the University Curriculum and Academic Affairs Committee, then to the Faculty Senate.

Please refer to the Curriculum Approval Procedures Manual (CAPS) for a complete explanation of the curriculum process.

Programs in the TMGT Department are continually evaluated for relevancy and rigor, to ensure that they meet the needs of students and employers. Programs are evaluated by currently enrolled students through senior exit interviews and surveys as well as general discussion. Individuals responsible for instruction provide feedback for a program based on their research, contacts at conferences, and discussions with employers. Program graduates provide input through surveys.

If major revision becomes necessary, the procedure described for program development is followed.

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 (Table 6.1) in each category.

A growing percentage of the College of Technology student body are transfer students from other four-year institutions, Vincennes University, Ivy Tech Comm. College, and two-year colleges from other states. An initial transfer evaluation (on the basis of instructional accreditation and satisfactory grades) is provided by the Office of Admissions. Department chairs and TMGT faculty then further evaluate the credit for possible acceptance in the program for which the student has applied. Credit is then posted to the student’s permanent transcript. Formal agreements with Ivy Tech Comm. College and other schools are continuously being updated.

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

The University requires a minimum of 124 hours of credit, 30 hours of resident credit, a minimum cumulative grade point average of 2.0 on a 4.0 scale, completion of a minimum of 50 hours at the 300-400 level, and completion of the General Education Program.
The Advanced Manufacturing Management program requires the completion of 15 courses or 43 hours of 300–400 level course work. Eleven of these courses are offered within the department; one is an MET course, one a Health course, and two are ECT courses.

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), and (e) fees and other charges.

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 as 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 national or regional accrediting agency are considered for ATMAE accreditation.

Indiana State University is a public, state-supported institution, under the general control of a board of trustees, known and designated as the Indiana State University Board of Trustees. Other state boards, offices, and agencies exercise certain statutory controls and have specified duties and responsibilities pertaining to the operation of the University.

6.4 Instruction

6.4.1 Course Syllabi: Course syllabi must be presented which clearly describe appropriate course objectives, content, references utilized, student activities, and evaluation criteria. Representative examples of student’s graded work shall be available for coursework.

Course syllabi are available for each course. Course notebooks have been prepared to clearly describe appropriate course objectives, content, references utilized, student activities, evaluation criteria and evidence showing a range of examples of students’ graded work. The notebooks will be made available in the resource room.

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

There are many areas where the program can access reference materials appropriate
for individual classes. The Cunningham Memorial Library houses books, periodicals, electronic media, and an excellent reference service complete with computerized searches. Research assignments are given, for example, in TMGT 131, and TMGT 478, where students are required to avail themselves of the services offered at the library. There exists a Library Committee in the College of Technology and each year faculty are given the opportunity to request books and periodicals to be purchased and available for student use in the library.

The Office of Information Technology supports multimedia services for all faculty as needed in instructional settings.

Each room in the Myers Technology Building is equipped with media projection systems. Professors often access the web during class to supplement the information being presented.

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 theoretical/conceptual emphasis of “why”.

By definition, the student of industrial technology is one who has a theoretical understanding balanced by “hands-on application.” Because the faculty is committed to this balance, classes have theoretical instruction balanced by laboratory demonstrations and student participation. Theoretical underpinnings and laboratory instruction are delivered by the professor of the course. The grading system in each of the classes reflects this same balance between theory and application. Grades are determined by assessment of the theoretical knowledge by examination as well as demonstration of application in laboratory exercises. No single element is more important than the other. Thus, through instruction and grading practices the message is clear that theory and application are seamlessly integrated and skill with both makes the technologist a valuable resource.

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

The employers who hire our students tell us that the ability to solve problems is one of the most valued traits in the college graduate. Obviously, laboratory experiments are natural opportunities to apply the ability to solve problems, and more than 50% of the course work towards the degree in Advanced Manufacturing Management has a laboratory component. However, each class offers students opportunities to apply their problem solving skills. There are many instances and examples that could be cited, following are some examples:

TMGT 131: Students are given the assignment to “Think like a problem solving technologist” and identify a company manufacturing a product they would be interested in knowing more about. They must then solve the problem of finding someone to sponsor them for a field trip, and complete the assignment by presenting their results to the class. The steps of the problem solving process are explained and students are given a “real world” opportunity to implement the process.

MFG 225: Students are required to understand why certain testing is done on Materials used in manufacturing. One of the lab problems they must solve involves determining what the composition of the material is, based on the results of hardness, tensile, impact, etc. testing.

MFG 376: Students are required to solve a programming problem to manufacture a
design based on specifications.

TMGT 478: Students are given the problem of manufacturing a specific number of products, within a budget, in a narrow time frame. The students are also tasked with designing an original product that would be marketable to a target population.

TMGT 497: Students are taught, in an interactive format, a specific problem solving method. The class is required to apply the newly learned method to solve a “real world” problem identified at ISU.

Examples of problem solving activities can be found in the course notebooks.

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

Faculty members in the Department have been selected and appointed to their positions after careful scrutiny and verification that they possess excellent qualifications for the position. These include both professional and technical qualifications. Careful evaluation of their instruction is conducted by the chairperson and a committee of their peers during their probationary period prior to being granted tenure. Following the granting of tenure, instruction is evaluated less formally except in cases where the faculty member applies for promotion or “above standard” pay increases. In those instances, rather detailed documentation of teaching performance is required.

6.4.6 Scheduling of Instruction: The organization and scheduling of instruction shall allow adequate time for completion of appropriate homework assignments and laboratory problem-solving activities.

Many of the required courses are offered every semester, however, some courses are offered once a year. Students are able to schedule their courses in the suggested sequence and meet the requirements of any prerequisites. By distributing courses throughout the week, students have ample time to complete homework and other “out-of-class” assignments. Most laboratory assignments are scheduled for class time as very few labs are “open labs”. Professors are aware of the restrictions on student time and are generally conscientious about setting realistic deadlines for any assignments, especially laboratory assignments. Evening classes are offered as necessary. Distance courses are offered to accommodate our distance students in certain programs.

Faculty teaching assignments depend on the departmental schedule requirements, the nature of the courses taught, the combination of undergraduate and graduate courses, and, to a limited extent, non-teaching assignments. The normal teaching load is nine to twelve credit hours of course work per semester. Contact hours for a course load would vary according to what type of course is being taught, i.e., one hour contact per one hour lecture and more contact for a laboratory. Consideration is also given to the number of preparations required of a faculty member. These weights are carefully observed in making faculty teaching assignments.

6.5 Faculty

6.5.1 Full-Time Faculty: Each program of study option shall have an adequate number of full-time faculty.

Currently, the AMM program is low enrolled and there are more than enough faculty teaching courses in the program. They also teach courses in other programs. Several
courses such as TMGT 492 – Industrial Supervision, are required in several programs in the COT.

6.5.2 Minimum Faculty Qualifications: The review of program faculty qualifications shall include current faculty resumes providing clear evidence documenting the extent and currency of: (a) academic preparation, (b) industrial experience at the management/supervisory levels, (c) applied industrial experience related to the program content area(s), (d) current certifications/licensure related to the program content area(s), (e) membership and participation in appropriate professional organizations, and (f) scholarly activities. The minimum academic qualifications for regular tenure track, or full-time, faculty members shall be a graduate degree in a discipline closely related to the instructional assignment.

Resumes of the regular full-time faculty teaching in the Advanced Manufacturing Management program will be available in the resource room. The minimum academic qualification for a tenure track faculty member is a master’s degree in a discipline closely related to the faculty member’s instructional assignment. Varying additional hours of graduate work are required for hiring at academic ranks above the instructor level with the requirement of an earned doctorate for the professor rank. Tenure-track faculty are appointed with the expectation that a pre-tenure probationary period will be served.

6.5.3 Academic Preparation of Faculty: A minimum of fifty percent of the regular tenure track, or full-time faculty members assigned to teach in the program of study content area(s) shall have an earned doctorate or appropriately defined terminal degree. Exceptions may be granted to this standard if the institution has a program in place that will bring the faculty demographics into compliance within a reasonable period of time.

At the present time there are 2.5 full-time faculty in the TM Department teaching in the AMM program. The TM Department chair has the following responsibility: .5 chair, .5 faculty. Two of the faculty hold earned doctorates and one has completed all the course work for the doctorate.

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

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/or 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.

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. This document will be available in the resource room.

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.

The University Handbook identifies a normal teaching load as 12 semester credit hours of course work per semester or 24 semester credit hours per academic year.

Teaching loads within the College of Technology depend on the departmental schedule requirements, the nature of the courses taught, and any non-teaching assignments. Graduate courses are weighted more heavily than undergraduate courses. A faculty member teaching a graduate course may have his/her teaching load reduced to nine credit hours.

Faculty service loads are comparable to the faculty in other professional program areas at the institution. TM faculty perform institutional, professional and community service in varying degrees. The service component is only one area upon which faculty are evaluated for reappointment, tenure and promotion. Faculty understand there needs to be a good balance between teaching, service, and scholarly activity. With each year’s evaluation for reappointment, TM faculty are reminded to work toward activities in all three areas.

The advising of students is divided equally among the faculty teaching in the AMM program. It is understood that advising, when done properly, takes a considerable amount of time. The routine scheduling of classes was shifted a few years ago to the Associate Dean’s Office. Currently, Ms. Jo Anne Seybold is providing assistance to some of the AMM students regarding routine scheduling of classes.

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.

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.

The supporting evidence for this standard can be found in Section II of the self-study report.

6.6.2 **Scholastic Success of Students:** Students in Industrial Technology shall have scholastic success comparable to those in other professional curricula in the institution. Grading practices in Industrial Technology courses shall be comparable to other departments and/or programs in the institution.

Students graduating from the College of Technology, and particularly the TM Department, have scholastic success comparable to those in other curricula in the institution.

Students in the Manufacturing Technology program have scholastic success comparable to those in other programs. The scholastic achievement level of students in the major course work can be found in the course resource notebooks.

Evidence can be found in the Appendix – COT GPA.

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. 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 the visiting team. These statistics shall include placement rates as well as salary levels of program graduates.

The initial placement of graduates of the TM program have enjoyed the same favorable reception by industry as graduates of similar programs around the country. One May, 2009, graduate is working for Delta Faucets as an Engineer, starting at $56,000. Another May graduate of the program is an Engineer in Training at GE Unison Engine Components.

The ultimate goal of the program is to prepare our graduates with the proper skills to be successful in their career. The TM faculty work closely with the advisory board and other manufacturing professionals to help ensure that the AMM program will prepare students to gain initial employment and then advance in their career.

Evidence can be found in the Appendix - Surveys

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). Reactions and recommendations shall be considered in program revisions.

Students in the AMM program have a few opportunities to evaluate the program. Each student will have an exit interview just prior to graduation. Students also complete a senior survey with the Career Center. Every few years, survey letters are sent to alumni and employees to further evaluate programs in the TM Department. The Dean’s office and the office of CRT also conduct post-graduate surveys.

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 financial and facility resources shall be considered as a constraint on the maximum number of qualified students to be admitted to the program(s). Enrollment trends 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 as well as financial and physical resource needs.

Enrollments (both undergraduate and graduate) in the College of Technology have Remained steady since 1998. Enrollments in the AMM program have also remained steady. The program has always been low enrolled. However, filling the classes necessary for the program is usually not a problem since most of the courses are required by students in other programs such as Mechanical Engineering Technology, Packaging Technology and others.

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

All students who have not declared a major area of study (non-preference students) and all non-degree students are advised in the Student Academic Services Center. The Center serves as the designated “school” of enrollment for these students until an official major has been declared.

The purposes of the Student Academic Services Center are: (1) to help freshmen adjust more easily to the academic processes of the University; (2) to assist in selecting academic majors, in choosing wisely the specific courses needed to attain these goals; (3) to coordinate the participation of faculty in the advisement of students; and (4) to function as a resource center for materials and information concerning undergraduate curricula and general education requirements.

Primarily, the Student Academic Services Center serves freshmen and sophomores. Students are provided an opportunity to discuss academic concerns in confidence with counselors, and arrangements are made for students to confer with faculty members concerning career opportunities in various academic areas.

When a student chooses a major area of study, his/her records are transferred to the chosen College and department. A faculty advisor is then assigned to the student.

Faculty Academic Advising

When the student has chosen an area of specialization, he/she is referred to a regular faculty member who serves as the academic advisor. Data including the student’s personal biography, high school rank, and rating on the freshman orientation and achievement examinations are supplied to the advisor. The advisor will assist the student in planning the use of his/her time in acquiring good study methods and in referring the student to special services on campus as the need arises.

The advisor, in cooperation with various University agencies, will assist the student in scheduling his/her successive programs of study. At the first mid-semester, the end of each semester thereafter, and such other times as advising sessions are needed, the academic advisor will confer with the student regarding the progress in relationship to his/her own natural level of learning and to the academic standards of the University.

Faculty in the Department of Technology Management advise students who are enrolled in the AMM program.

Student Participation in Program Planning
Each student enrolled in the University is expected to read carefully and to understand the contents of the University Catalog that are applicable. This includes the awareness of the University general policies and regulations for academic achievement necessary for continued enrollment as well as for graduation, in addition to those regulations identified by Student Services relating to his/her social and campus conduct.

The students are also responsible for familiarizing themselves with any requirements special to the academic discipline of their choice which must be a condition of their qualifying for graduation.

Each student should assume at the earliest moment possible the initiative for preparing the semester schedule of classes. The academic advisor is available to offer suggestions and to verify the accuracy of course choices in meeting curricular patterns, but the primary responsibility for knowing the requirement of the academic program and proceeding to satisfy those requirements in an orderly and sequential manner remains with the student.

6.6.8 Ethical Practices: Ethical practices shall be fostered, including reasonable student refund policies and nondiscriminatory practices in admissions and student employment.

Indiana State University is unequivocally pledged to principles of nondiscrimination, assuming fair and equitable treatment of all persons. The University has given assurance of compliance with national, state and local civil rights legislation and enactments.

Indiana State University reaffirms its present policy of nondiscrimination and equal employment opportunity with respect to recruitment, hiring, training, promotion, and treatment of persons. The organizations, services, and programs under the legal control of the Trustees of Indiana State University shall be maintained on a nondiscriminatory basis in regard to race, sex, religion, handicap, veteran status, age, or national origin at all times.

Indiana State University will continue to take positive actions to ensure against discrimination directed to any persons. All members of the faculty and staff are expected to give full support to the University’s commitment to equal opportunity and affirmative action.

The tuition refund policy and withdrawal policy can be found in the Undergraduate Catalog, http://catalog.indstate.edu/index.php

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 lead professor in the Advanced Manufacturing Management program is Professor Fauber. She is a tenured faculty in the Department and holds the rank of Associate Professor. She is a full-time employee of the institution. Professor Fauber’s vita listing her accomplishments is available for review.

6.7.2 Administration Leadership: Individuals assigned to administer Industrial Technology programs must demonstrate effective leadership and a high level of
support for Industrial Technology

The Dean of the College of Technology has been very supportive of all programs housed within the College. The respect the College of Technology has achieved within the University, within the community, and within the region, in part, can be attributed to the past three Dean’s.

The chair of the Technology Management department has always supported Industrial Technology programs and has been a member of ATMAE (NAIT) since 1989.

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. The Chair and the Dean support the concept of shared participation which has been utilized in student recruitment, curricular matters, instructional evaluation and service and scholarly activities. Committees are utilized to develop policies the Chair may use in regard to personnel matters, budget development, supply and equipment expenditures, repairs and curriculum matters.

Both of the Deans and the TM Department Chair support the Industrial Technology programs. Two of these individuals have been long-time members of ATMAE (NAIT), attend the yearly ATMAE (NAIT) conference and are actively involved in the organization.

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 professional programs at the institution will be made by the visiting team.

The $18.5 million, 120,000 sq.ft. Myers Technology Center, opened in 1998, provides a 21st century learning environment.

At the present time there are four major lab areas associated with the AMM program. They are (1) Machine Tool Processing Lab, (2) Metallurgical and Nondestructive Testing Lab, (3) Manufacturing Lab, and (4) SIMCO lab.

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 option(s) and sources of potential funding shall be identified.

One of the long-range goals is to continue to update equipment and enhance laboratories in the AMM program.

The TM Department receives a budget for equipment each year. These monies are then distributed to the various programs by a process whereby individual faculty submit requests to a departmental committee. The committee reviews the requests and submits a list of recommended purchases to the Department Chair for purchase. The system is deemed fair and equitable and the available monies adequate to maintain program integrity.

Additional support for the programs through donations of equipment and supplies from outside sources is constantly being sought and has been very successful.
6.8.3 Appropriateness of Equipment: Equipment shall be appropriate to reflect contemporary industry. Student use of equipment reflecting current technology practices shall be evident.

An underlying philosophy held by the faculty involved in the manufacturing programs has been to secure equipment that is representative of that used by industry. Whenever this is not possible, table top models or units are considered for purchase. Essentially all equipment is used by the students in laboratory situations.

6.9 Computer Systems

6.9.1 Availability of Computer Systems: Appropriate and current computer systems and software shall be available to both students and faculty. These systems must cover appropriate functions and applications in each program area. These systems may be on or off-site as long as the systems are accessible to students and faculty.

Campus wide, there exists several thousand computers in approximately 400 laboratory settings. The COT has hundreds of computers. One such lab, the Student Computing Center, is open 24 hours a day, has 100 computers and several laser printers available for student use, and always has a computer consultant available to help students with concerns or problems.

Labs specific to Manufacturing classes include TC 114, which has 21 Dell OptiPlex GX 270 computers. Fifteen of these computers in the SIMCO Lab are equipped with MasterCAM software, as well as the complete MicroSoft Office Suite, as well as internet explorer. Another lab specific to AMM is TC025 where 12 Dell OptiPlex GX 270 computers reside. These labs and the computers are available for students during class time or by arrangement with professors.

6.9.2 Utilization of Computer Systems: Evidence shall be available which indicates that students and faculty are making significant use of computer systems related to program curricula.

Evidence indicating that students and faculty are making adequate and appropriate use of computer systems begins with on-line registration and is evident through many class assignments and ends with the on-line designation of grades. ISU has enacted an interactive computer system called: MYISU. Students determine what classes are available, register for classes, drop and add, find out their grades, and communicate with their professors and fellow students through use of the Portal.

Faculty use computer systems for advisement by downloading Degree Audit Reports, for reporting attendance by electronically inputting absences after the sixth and tenth weeks of the semester, and for electronically reporting grades at mid-term and end of term. Faculty use the computing systems to email, make assignments, and send electronic attachments to all class members, thus eliminating the need to make hard copy and distribute during class.

Students use computers and software in many different courses. Evidence of this can be found in the course notebooks located in the resource room.

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 shall make comparisons with the support levels given to other professional programs at the institution.
Each year the Department receives an operating budget based on the previous year’s expenditures. Over the years, the operating budget hasn’t changed much until the most recent budget crises where the department lost some supply funds. Generally, if operating expenses exceed the budget, a request is made to the Dean for financial support. This rarely happens as the chair and faculty work to stay within the budget.

In addition to the operating budget, equipment budgets are also given to each department. The allocation of these equipment budgets is based on the laboratory needs of each department. Each department also receives a portion of the Distance Delivery dollars that are generated by distance courses. The TM department currently receives approximately $13,000/year that can be used to support distance financial endeavors.

Faculty salaries are determined upon initial appointment. After initial appointment salary increases are based on standard across the board raises or sometimes upon below standard increases, standard increases, or above standard increases. The level of increase which each faculty may receive is based on their level of activity in the areas of Teaching Effectiveness, Service, and Scholarly Activities.

Faculty also receive increases in base pay upon earning advanced degrees and also in the case of promotion to higher ranks.

Control of expenditures is solely within the Department. An initial allocation of operational funding is given to each program in the form of a supply and a student wages account. All equipment purchases are approved by a departmental finance committee which ranks and approves requests for capital equipment purchases.

Evidence of the CoT operating budget can be found in Section II of the self-study report.

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

External financial support comes in many forms. The AMM program benefits from industry donations. Over the past several years items have been donated from Sony-DADC, Sumco, Inc., Robotic Technology Systems and Thermwood.

SONY donated motors and electronics valued at $50,000 and Sumco donated a Leco Mounting press valued at more than $2500.

6.11 Library Services

6.11.1 Library and Internet Resources: The administrative unit containing the Industrial Technology program(s) and/or the institutional library shall have access to technology resources, literature and reference materials adequate to meet the curriculum and research needs of students and faculty.

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

The collections used by the AMM program are housed in two University locations on campus. Cunningham Memorial Library is the main library, with the science library containing a collection of science materials.
Approximately 20% of the holdings in the Cunningham Memorial Library relate to the technical, scientific, management or behavioral sciences useful to the various courses of the program.

The University has an agreement with Rose-Hulman Institute of Technology, Saint Mary-if-the-Woods College, Vincennes University and the University of Southern Indiana where the holdings of these institutions can be searched through the ISU Library’s system and retrieved.

An excellent inter-library search and loan system is in place at Cunningham Memorial Library.

Evidence of this can be found in the Appendix – Library.

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

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.

Evidence of this can be found in the Appendix – Library.

6.12 Support Personnel

Support Personnel: Personnel such as teaching assistants, student workers, office professionals, and laboratory technicians shall be adequate to support program objectives.

The following personnel provide support for the AMM Program:

1. Administrative Assistant – The Department has one full-time Administrative Assistant. She must handle the work from all members of the Technology Management Department.

2. Technicians – The College of Technology has an electronic technician and a mechanical technician available to assist faculty with projects and repairs.

3. Graduate Assistants – The TM programs have seven graduate assistants presently assigned who are being utilized as teaching assistants. The Department also has one Ph.D. fellow working with the Department faculty.

4. Student Workers – Student workers provide support for all TM programs. Students are used to help organize, clean and set up the labs, and assist the Lab coordinators. Money is available in the operating budget to hire Student workers.

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 placement services shall be evaluated by the administrative unit containing the Industrial Technology program(s).

Although the Career Center helps students find suitable summer and part-time employment, the focus of its activities is on placement of seniors, graduates, and alumni. Career Center services are viewed as an integral part of the academic program of any student to fulfill the University’s educational objectives.

Evidence of this can be found in the Appendix – Career Center/Internships

6.13.2 Cooperative Education/Internship: If cooperative education or internship 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.

Cooperative education/Internship is required in the AMM program. As stated earlier in this document, students receive credit for co-op through a course numbered TMGT 351 in their major. Some students take repeated co-op positions and can receive TMGT 351 credit for a total of six semester hours.

Employers are contacted about their possible interest in co-op through several activities. Faculty make many contacts with industry professionals and the Career Center sponsors career fairs for companies interested in co-op students.

Students are made aware of co-op opportunities through a variety of activities. Career Center personnel make presentations in many College of Technology classes. Students also attend meetings of professional organizations, and participate in many other student-centered activities including IOPP meetings, SME meetings, Women in Technology Meetings, the Career Fair, and other activities.

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 program of study or program option is available, then appropriately qualified industrial representatives shall be added to the committee or more than one committee shall be maintained. Policies 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 industry advisory committee assists the manufacturing programs in many ways. They help with validation of content, provide their expertise and that of the companies they represent and make suggestions that will help improve the program. Following is a list of the contact information of the Industrial Advisory Committee:

### Advisory Board Members

<table>
<thead>
<tr>
<th>Mr. Bob Brown</th>
<th>Mr. David Lynch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tri Aerospace</td>
<td>PDF Controls</td>
</tr>
<tr>
<td>1055 S. Hunt Street</td>
<td>10102 N. Murphy Ave., P.O.</td>
</tr>
<tr>
<td>Terre Haute, IN 47803</td>
<td>Box 493</td>
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<tr>
<td></td>
<td>Brazil, IN 47834</td>
</tr>
</tbody>
</table>
Ms. Ann Case  
Tredegar Industries  
3400 Ft. Harrison Road  
Terre Haute, IN 47804  
Cell: 812-249-6292  
Phone: 812-466-0328  
Email: cacase@tredegar.com

Mr. Marvin Miller  
MECO  
2121 S. Main Street  
Paris, IL 61944  
Phone: 217-465-6500 X 6577  
Email: MMiller@Doncasters.com

Mr. Mark Deady  
Clabber Girl  
900 Wabash Ave.  
Terre Haute, IN 47805  
Phone: 812-478-7189  
Email: mdeady@clabbergirl.com

Mr. Wesley R. Richardson  
Quality Council of Indiana  
10037 E. Flesher Avenue  
Terre Haute, IN 47803  
Phone: 812-533-4215  
Email: wes@qualitycouncil.com

Mr. John DiCenso  
Raybestos Powertrain, LLC  
609 E. Chaney Street  
Sullivan, IN 47882  
Phone: 812-268-0322 X 223  
Email: jdicenso@raybestospowertrain.com

ISU Members

Professor Beth Fauber  
Technology Management Dept.  
Phone: 812-237-3379  
Email: Beth.Fauber@indstate.edu

Dr. Tad Foster  
Technology Management Dept.  
Phone: 812-237-4508  
Email: Tad.Foster@indstate.edu

Dr. Jeff McNabb  
College of Technology  
Phone: 812-237-3347  
Email: Jeffrey.McNabb@indstate.edu

Dr. Mike Hayden  
Technology Management  
Phone: 812-237-3359  
Email: Michael.Hayden@indstate.edu

Dr. Marion Schafer  
Technology Management  
812-237-3352  
Email: Marion.Schafer@indstate.edu

Dr. Brad Sims, Dean  
College of Technology  
Phone: 812-237-3166  
Email:
Since there are many similarities between the Advanced Manufacturing Management program and the Technology Management program, one industrial advisory committee is utilized for both programs. After the last NAIT re-accreditation in 2004 a constitution and by-laws document was created to guide the activities of the industrial advisory board. It addresses all of the items in this standard and is included here for the visiting team to review.

CHARTER CONSTITUTION AND BY-LAWS

Advisory Board for the Manufacturing Programs
at
Indiana State University

Approved: April 20, 2006
Revised June 10, 2008

Preamble

We, the members of the Advisory Board for the Manufacturing Programs at Indiana State University, do hereby adopt and establish the following Constitution and By-Laws.

Name

This organization shall be known as the Advisory Board for the Manufacturing Programs at Indiana State University (or briefly, the Advisory Board).

Purpose

The purpose of the Advisory Board shall be to advise, support, and promote the Manufacturing Programs (MP) at Indiana State University so that the student’s learning experience upon graduation will more effectively support the practical development of future leaders in the manufacturing industry.

Other objectives of the Advisory Board shall be to:

- Provide regular critiques of the Program’s curriculum.
- Suggest course offerings that would benefit MP students.
- Provide strategic planning assistance to help meet future needs of graduates and the manufacturing industry.
- Provide input to the MP graduate programs.
Assist in the establishment of MP certificate programs. 
Assist in providing cooperative education/internship experiences for students, placement of MP graduates, and professional development for faculty. 
Support fund-raising. 

Membership 
The number of Advisory Board members will be a minimum of eight (8) and a maximum of twenty (20) plus ex officio (nonvoting) members: 
Dean of the College of Technology. 
Chair of the Department of Technology Management (TM). 
Manufacturing Programs (MP) faculty. 

Procedures used in selecting members: 
Advisory Board members shall be selected from professions and trades related to the manufacturing industry. 
The Advisory Board members shall be nominated by the MP faculty to the Chair of the TM Department. The Chair shall schedule a meeting of the MP faculty to make a final decision. 
Each appointment to the Advisory Board shall be for three (3) years, except when the appointment is to fill an unexpired term. 
Approximately two-thirds of the members will be retained each year with none serving more than three (3) successive years, unless reappointed by the Manufacturing Programs faculty. 
The term of a new Board member shall begin on January 1. 

Any member may resign his or her membership in the Advisory Board by submitting a signed resignation to the chairperson of the TM Department. 

Any member missing two consecutive meetings without due cause shall be considered uninterested and eliminated from membership. 

Board Policies 
The Advisory Board for the Manufacturing Programs is based upon the principles of equality of all its members regardless of sex, race, creed, or color. 

All members shall strive to fulfill in good faith the objectives of the Advisory Board and the obligations assumed by them in accordance with this constitution. 

Finances 
The necessary expenses of this organization shall be paid from the operating expenses of the TM Department. 

No dues shall be required of any Advisory Board members.
Amendments
Amendments to the Constitution or By-Laws shall be ratified by three-fourths affirmative vote of the active members.

BY-LAWS

Officers
The Advisory Board shall have two officers—President and President-Elect. The Chair of the TM Department shall serve in an advisory role with duties listed below. Elections will be held once a year during the spring meeting. Nominations can be taken from the floor. Officers shall serve for a term of one (1) year.

The duties of the President shall be as follows:
- Provide a focus for the membership and preside at each meeting.
- Coordinate all administrative responsibilities of the Advisory Board.
- Schedule meetings.
- Prepare agendas.

The President-Elect shall assist the President as necessary and prepare to serve as the next President.

The Chair of the TM Department shall assist the President as follows:
- Serve as the liaison between the Advisory Board and the Manufacturing Programs faculty.
- Write and distribute meeting minutes.
- Prepare, update, and distribute a Board directory.
- Coordinate meetings and prepare agendas.
- Assist in the selection of new members.

Board Committees
The President shall appoint committees as deemed necessary.

Board Meetings
The Advisory Board shall meet at least once a year.

Special meetings of the Board may be called by the President as deemed necessary.

A quorum shall consist of one half of the active members of the Board. If there shall be less than a quorum present, those present may either adjourn or act on the matters before it, subject to ratification at the next meeting which constitutes a quorum.

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

The IAC has been very helpful in making suggestions that have benefited the Manufacturing programs. The board meets at least once a year and often meets twice/year (fall and spring).

Following are two examples of minutes from IAC meetings. Some of the recommendations made and actions taken are evidenced in the minutes. Minutes from other meetings are available on request.

<table>
<thead>
<tr>
<th>Technology Management Department</th>
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<tr>
<td>Advanced Manufacturing Management Program (BS)</td>
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<tr>
<td>Technology Management (BS)</td>
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<td>Industrial Technology Program (MS)</td>
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**Minutes of Advisory Board Meeting**

March 27, 2008

**ATTENDEES:**

<table>
<thead>
<tr>
<th>Name</th>
<th>Company/Institution</th>
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<tr>
<td>Bob Brown</td>
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<td>John DiCenso</td>
<td>Raybestos</td>
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<td>Gordon Minty</td>
<td>Wes Richardson</td>
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<tr>
<td>Beth Fauber</td>
<td>ISU</td>
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<td>Tad Foster</td>
<td>ISU</td>
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<td>David Lynch</td>
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<td>Jeff McNabb</td>
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<td>Jim Smallwood</td>
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<td>Mark Deady</td>
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<td>Marvin Miller</td>
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<td>Mike Johnson</td>
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I. Welcome and Introductions

II. Agenda Additions

III. Approval of Minutes (April 12, 2007) – Approved as submitted.

IV. Dean’s Report, Dr. W. Tad Foster – Dean Foster spoke to the following issues:

1. Project with Landstone (Compression and Absorption)
2. COT Reorganization
3. Enrollments (undergrad and grad)
4. Project Lead the Way

V. Verify Address, Phone, E-Mail

VI. Discussion Items (New Business)

A. General Announcements

1. Ivy Tech – Articulation agreements will be updated and signed in April.
2. Meeting canceled last fall due to so many conflicts.
3. How you have helped the ISU faculty and programs.

B. Election of President & President-Elect – Elected for the 2008-2009 year were:
President – Wes Richardson; President-Elect – John DiCenso.

C. COT Reorganization – J. Smallwood just added to what the Dean spoke about the reorganization by relating how the changes would affect the Board.

D. TM Dept. Programs – J. Smallwood distributed information about all programs in the new TM department.

E. Curriculum Update – B. Fauber and G. Minty discussed the changes that were made to the manufacturing programs. Information was shared (checksheets, suggested 4 yr. course sequence, etc.).

F. NAIT Reaccreditation – Wes Richardson requested this be added to the agenda. There was discussion about the next team visit and what we needed to do now to get prepared.

G. Action Items from last meeting:
   1) Bob Brown gave the WVAMC video to Sajid but somehow it didn’t get to J. Smallwood. We will follow up to see what happened.
   2) There was some discussion on how to market manufacturing programs through the WVAMC and WIB. More discussion on this topic at a future meeting.

H. Actions Items for Next Meeting (Fall 2008):
   1) **Send** constitution and by-laws to Mark Deady.  
      **Person in Charge**: Jim Smallwood
   2) **Send** an updated list of the activities to the advisory board.  
      **Person in Charge**: Jim Smallwood
   3) **Contact** Archie Kappel and Jim Kern to see if they want to continue on the advisory board.  
      **Person in Charge**: Jim Smallwood
   4) **Update** the Constitution and By-Laws to reflect the new TM department.  
      **Person in Charge**: Jim Smallwood.

Meeting adjourned.

Technology Management Department
Advanced Manufacturing Management Program (BS)
Technology Management (BS)
Industrial Technology Program (MS)
Minutes of Advisory Board Meeting
October 30, 2008

**ATTENDEES:**

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<th>Bob Brown</th>
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<th>Gordon Minty</th>
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33
Beth Fauber ISU
Ann Case Tredgar
Mike Hayden ISU

Jim Smallwood ISU
Jeff McNabb ISU

I. Welcome and Introductions

II. Agenda Additions

III. Approval of Minutes (March 27, 2008) – Approved as submitted.

IV. Dean’s Report, Dr. Jeff McNabb – Dr. McNabb spoke to the following issues:
   1. Enrollment and Retention
   2. Searches in the COT
   3. NAIT
   4. Project Lead the Way
   5. Capital Campaign
   6. Tech Trek

V. Verify Address, Phone, E-Mail

VI. Discussion Items (New Business)
   A. General Announcements
      1. Action Items completed from last spring.
      2. Dean’s Search committee is being assembled.
      3. Dr. Smallwood will be on Sabbatical Leave in the spring.
      4. New faculty in TMGT dept.
   B. NAIT re-accreditation – The NAIT visiting team will come in Spring, 2010 to review programs for re-accreditation. There was discussion on what needs to be done to get prepared for their visit.
   C. Student Learning Outcomes – There was discussion on the Student Learning Outcomes for the Advanced Manufacturing Mgt. program. The advisory board provided some input and is being asked to provide additional feedback to Professor Fauber.
   D. Mission and Vision – The TM dept. is currently working on the mission and vision statements for the new department. The advisory board provided some input.
   E. Strategic Planning - Strategic planning is underway for the manufacturing related programs. The advisory board is being asked to provide input.
   F. Action Items from last meeting: Dr. Smallwood completed the four action items from the spring advisory board meeting.
G. Actions Items for Next Meeting (Spring, 2009):

1) Provide input to Professor Fauber on a) Mission and Vision, b) Student Learning Outcomes for the AMM program, c) Strategic Plan.

   Person in Charge: All Advisory Board Members and ISU faculty.

Meeting adjourned.

6.15 Educational Innovation

   Educational Innovation: There shall be evidence that program objectives are based upon long-range planning related to the industries being served. Program content must be current in both content and delivery of instruction.

   Input is gathered from the Industrial Advisory Council and other industry professionals through professional association meetings, internships, field-trips, projects and many other techniques. Through all of these efforts the faculty have a good understanding of current manufacturing practices, both technical and management. The program objectives in the AMM program are constantly reviewed for relevance. As you will see in standard 6.16 the faculty have established an assessment plan for the program that will review all of the outcomes/student competencies twice over a six year period. This long range plan will allow us the opportunity to confirm what we do in the AMM program or to make decisions about curricular changes where necessary.

   Teaching methods are changing as faculty identify and develop the best method to use in meeting objectives of each course. Several Department members have completed Distance Delivery training and are transforming classes to be offered via distance education methodologies or improving classes which are currently offered through distance measures. Several faculty use the course management software Blackboard to supplement their on-campus courses. Some faculty use a combination of delivery which includes in-class and synchronous distance education by using the Eluminate and Tegrity software. This is something new for us since ISU is slowly getting away from the old IHETS system. Several faculty in the department have attended training sessions on both of these software and delivery techniques. The TM faculty have made a good effort to stay current in learning the different options available for delivery of instruction.

   Results of these innovations and new technologies are disseminated in published papers and conference presentations.

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 Advanced Manufacturing Management degree program at Indiana State University strives to provide graduates who are both knowledgeable and experienced in the
processes and technologies of current manufacturing operations and the management of the manufacturing workforce. We integrate teaching with experiential learning in a challenging environment to prepare manufacturing professionals for Indiana and the world.

(2) Program Outcomes/student competencies

Program Outcome # 1: The student will demonstrate mastery of the knowledge and tools to support and maintain manufacturing processes.

Program Outcome # 2: The student will be able to solve problems individually and as a member of a team.

Program Outcome # 3: The student will have an ability to exhibit good verbal and written communication skills.

Program Outcome # 4: The student will exhibit a respect for safety awareness and accident prevention.

Program Outcome # 5: The student will demonstrate an ability to utilize quality concepts.

Program Outcome # 6: The student will have a recognition of the need for and an ability to engage in lifelong learning.

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

<table>
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<th>COURSE #</th>
<th>A: have mastery of knowledge &amp; tools to support and maintain manufacturing processes</th>
<th>B: effectively solve problems individually and as a member of a team</th>
<th>C: exhibit good verbal and written communication skills</th>
<th>D: safety awareness/accident prevention</th>
<th>E: utilize quality concepts</th>
<th>F: engage in lifelong learning</th>
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(4) assessment measures used to evaluate student mastery of the student Competencies stated