7.2 Competency Identification & Validation: Measurable competencies shall be identified and validated for each program/option. These competencies must closely relate to the general outcomes established for the program/option and validation shall be accomplished through a combination of external experts, an industrial advisory committee and, after the program is in operation, follow up studies of program graduates.

7.4 Assessment of Competency Measures: Assessment measures shall exist for each of the measurable competencies identified for the program/option.

Outcomes, Competencies & Measures

The faculty has identified the following Outcomes, Competencies & Measures for the program:

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Measure: CTM Exam / Technology Management Skills Other level; Direct - Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Technological Development and Innovation</td>
<td>Details/Description: Senior level students will take the ATMAE Certified Technology Management (CTM) certification exam. The Professional Core will prepare students for the CTM exam. The Technological Development and Innovation outcome will be assessed through the management section of the ATMAE exam. Acceptable Target (optional): At least 70% of the students will achieve a passing score as determined by ATMAE. ATMAE will provide a yearly report of weaknesses and strengths in this area. Ideal Target (optional): The better qualified students are in technological management skills the greater their ability to apply technological innovations to address real world problems. Implementation Plan (timeline): Optional student graduation requirement to be taken during their senior year. Key/Responsible Personnel: The instructor of record for any professional core course. Supporting Attachments: ![Certified Technology Manager Exam](Certified Technology Manager Exam)</td>
</tr>
<tr>
<td></td>
<td>Measure: Innovation and Design in Technology Course level; Direct - Student Artifact</td>
</tr>
<tr>
<td></td>
<td>Details/Description: Students will propose solutions to real</td>
</tr>
</tbody>
</table>
world problems by completing a Major Individual Design Proposal in TADT 4537.

**Acceptable Target (optional):** At least 90% of the students will demonstrate a higher level (70% or higher) of performance on applying technological innovations to address real world problems. The Technological Development and Innovation outcome will be assessed through Major Individual Design Proposal.

**Ideal Target (optional):** See the attached proposal requirements and rubric.

**Implementation Plan (timeline):** This course is offered twice a year.

**Key/Responsible Personnel:** The instructor of record for TADT 4537.

**Supporting Attachments:**
- [4537 Major Design Proposal Assignment On-line](#)
- [4537 Major Design Proposal Assignment On-line](#)
- Measure: Technical Graphics
  - Course level; Direct - Student Artifact

  **Details/Description:** Students will work in teams to create a set of working drawings to communicate technical ideas and product development by completing a major project in TADT 1460.

  **Acceptable Target (optional):** At least 90% of the students will demonstrate a higher level (70% or higher) of performance by creating technical CAD drawings to address innovations and products development. The Technological Development and Innovation outcome will be assessed through Major Individual Project.

  **Ideal Target (optional):** See the attached Major Individual Project requirements and rubric.

  **Implementation Plan (timeline):** This course is offered twice a year.

  **Key/Responsible Personnel:** The instructor of record for TADT 1460.

  **Supporting Attachments:**
  - [Final Project Rubric](#)
  - [Major Project Guidelines](#)

---

**2 Technology Transfer**
Graduates will assess current knowledge for application to emerging technologies.

**Measure:** CTM Exam / Technology Management Skills
  - Institution level; Direct - Other

  **Details/Description:** Senior level students will take the ATMAE Certified Technology Management (CTM) certification exam. The Professional Core will prepare students for the CTM exam. The Technology Transfer outcome will be assessed through the production section of the ATMAE exam.
| **Acceptable Target (optional):** At least 70% of the students will achieve a passing score as determined by ATMAE. ATMAE will provide a yearly report of weaknesses and strengths in this area. |
| **Ideal Target (optional):** The better qualified students are in production strategies the greater their ability to apply and assess current knowledge of technological transfer to emerging applications. |
| **Implementation Plan (timeline):** Optional student graduation requirement to be taken during their senior year. |
| **Key/Responsible Personnel:** The instructor of record for any professional core course. |
| **Supporting Attachments:** Certified Technology Manager Exam. |
| **Measure:** Innovation and Design in Technology Course level; Direct - Student Artifact |
| **Details/Description:** Students will propose solutions to real world problems by completing a Major Individual Design Proposal in TADT 4537. **Acceptable Target (optional):** At least 90% of the students will demonstrate a higher level (70 % or higher ) of performance on applying technological innovations to assess current emerging technologies. The Technology Transfer outcome will be assessed through Major Individual Design Proposal. **Ideal Target (optional):** See the attached proposal requirements and rubric. **Implementation Plan (timeline):** This course is offered twice a year. **Key/Responsible Personnel:** The instructor of record for TADT 4537. **Supporting Attachments:** 4537 Major Design Proposal Assignment On-line. |
| **Measure:** Quality Assurance Course level; Direct - Student Artifact |
| **Details/Description:** Students will demonstrate different principles, techniques and applications of technologies that are used in the industrial sector by completing a major case study in TADT 4878. **Acceptable Target (optional):** At least 90% of the students will demonstrate a higher level (70 % or higher ) of performance on assessing current knowledge for application to quality assurance technologies. The Technology Transfer outcome will be assessed through the major case study. |
### 3 Communication
Graduates will demonstrate professional communication skills and the ability to work effectively as a part of a team in a technological environment.

| Measure: CTM Exam / Technology Management Skills |
| Institution level; Direct - Other |

#### Details/Description:
Senior level students will take the ATMAE Certified Technology Management (CTM) certification exam. The Professional Core will prepare students for the CTM exam. The Communication outcome will be assessed through the management section of the ATMAE exam.

#### Acceptable Target (optional):
At least 70% of the students will achieve a passing score as determined by ATMAE. ATMAE will provide a yearly report of weaknesses and strengths in this area.

#### Ideal Target (optional):
The better qualified students are in technological management skills the greater their capabilities are to demonstrate professional communication skills and the ability to work effectively as a part of a team in a technological environment.

#### Implementation Plan (timeline):
Optional student graduation requirement to be taken during their senior year.

#### Key/Responsible Personnel:
The instructor of record for any professional core course.

#### Supporting Attachments:
- Certified Technology Manager Exam.

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### Measure: Graduate Placement Survey
Other level; Indirect - Survey

#### Details/Description:
Graduate Placement Survey administered to all university graduates by Career Services every 2 years.

#### Acceptable Target (optional):
At least 70% of each year's graduates will be employed in related field, or in graduate school, within 2 years.

#### Ideal Target (optional):
The successful graduate placement of students will indicate students' abilities to demonstrate professional communication skills in interviewing abilities as developed through the Professional Core.

#### Implementation Plan (timeline):
This information is reported every 3 years to the ATMAE.
Key/Responsible Personnel: ATMAE Accreditation Coordinator.

Supporting Attachments:
- Alumni Survey Summary Data 2010.
- Graduate Placement Rates

Job placement or continuing education after graduation

Measure: Project Management
Course level; Direct - Student Artifact

Details/Description: Students will demonstrate the practical understanding of effective project management techniques through a team focused activity. Students will create a written and graphic project schedule by completing a team project in TADT 4897.

Acceptable Target (optional): At least 90% of the students will demonstrate a higher level (70 % or higher ) of performance by demonstrating professional communication skills and the ability to work effectively as a part of a team in a technological environment. The Communication outcome will be assessed through creating and presenting a project schedule.

Ideal Target (optional): See the attached project schedule requirements and rubric.

Implementation Plan (timeline): This course is offered twice a year.

Key/Responsible Personnel: The instructor of record for TADT 4897.

Supporting Attachments:
- 4897 Team - Focused Project Scoring Rubric.
- TADT 4897 Project Management Team - Focused Project Overview.

Measure: Technical Graphics
Course level; Direct - Student Artifact

Details/Description: Students will work in teams to create a set of working drawings to communicate technical ideas and product development by completing a major project in TADT 1460.

Acceptable Target (optional): At least 90% of the students will demonstrate a higher level (70 % or higher ) of performance by demonstrating professional communication skills using CAD application and the ability to work effectively as a part of a team in a technological environment. The Technology Transfer outcome will be assessed through Major Individual Project.

Ideal Target (optional): See the attached Major Project requirements and rubric.
**Implementation Plan (timeline):** This course is offered twice a year.

**Key/Responsible Personnel:** The instructor of record for TADT 1460.

**Supporting Attachments:**
- Final Project Rubric.
- Major Project Guidelines.

**Measure:** Technical Sales and Service Training Course level; Direct - Student Artifact

**Details/Description:** Students will develop and present a technical training unit by completing a major presentation in TADT 3885.

**Acceptable Target (optional):** At least 90% of the students will demonstrate a higher level (70% or higher) of performance by developing professional communication skills and the ability to work effectively as a part of a team in a technological environment. The Communication outcome will be assessed through technical training unit presentation.

**Ideal Target (optional):** See the attached presentation requirements and rubric

**Implementation Plan (timeline):** This course is offered twice a year.

**Key/Responsible Personnel:** The instructor of record for TADT 3885.

**Supporting Attachments:**
- 3885 Lesson Presentation Rubric.
- 3885 Sales Presentation.

---

**4 Leadership**

Graduates will apply principles of leadership, management, and supervision in a variety of technological settings.

**Measure:** CTM Exam / Technology Management Skills Institution level; Direct - Other

**Details/Description:** Senior level students will take the ATMAE Certified Technology Management (CTM) certification exam. The Professional Core will prepare students for the CTM exam. The Leadership outcome will be assessed through the management section of the ATMAE exam.

**Acceptable Target (optional):** At least 70% of the students will achieve a passing score as determined by ATMAE. ATMAE will provide a yearly report of weaknesses and strengths in this area.

**Ideal Target (optional):** The better qualified students are in technological management skills the greater their ability to apply principles of leadership, management, and supervision in a variety of technological settings.

**Implementation Plan (timeline):** Optional student graduation requirement to be taken during their senior year.
Key/Responsible Personnel: The instructor of record for any professional core course.

Supporting Attachments:
- [Certified Technology Manager Exam.pdf](#)

Measure: Engineering Economic & Cost Analysis
Course level; Direct - Student Artifact

Details/Description: Students will estimate and analyze the cost of engineering applications and practices by completing a major case study group project in TADT 3267.

Acceptable Target (optional): At least 90% of the students will demonstrate a higher level (70% or higher) of performance by applying principles of leadership, management, and supervision. The Leadership outcome will be assessed through a major case study group project.

Ideal Target (optional): See the attached major case study group project requirements and rubric.

Implementation Plan (timeline): This course is offered twice a year.

Key/Responsible Personnel: The instructor of record for TADT 3267.

Supporting Attachments:
- [Cast Study Project Guidelines.pdf](#)
- [Cast Study Rubric](#)

Measure: Facilities Management
Course level; Direct - Student Artifact

Details/Description: Students will research and present a topic on best practices of facilities management in TADT 4875.

Acceptable Target (optional): At least 90% of the students will demonstrate a higher level (70% or higher) of performance by applying principles of leadership, management, and supervision in a variety of technological settings. The Leadership outcome will be assessed through researching and presenting a topic on best practices of facilities management.

Ideal Target (optional): See the attached presentation requirements and rubric.

Implementation Plan (timeline): This course is offered once a year.

Key/Responsible Personnel: The instructor of record for TADT 4875.

Supporting Attachments:
- [4935 FM_Presentation_Rubric](#)
- [TADT 4935 Facilities Management Leadership Assignment_TaskStream Artifact](#)

Measure: Project Management
<table>
<thead>
<tr>
<th>Course level; Direct - Student Artifact</th>
</tr>
</thead>
</table>
| **Details/Description:** Students will demonstrate the practical understanding of effective project management techniques through a team focused activity. Students will create a written and graphic project schedule by completing a team project in TADT 4897.  
**Acceptable Target (optional):** At least 90% of the students will demonstrate a higher level (70 % or higher ) of performance by applying principles of leadership, management, and supervision in a variety of technological settings. The Leadership outcome will be assessed through creating and presenting a project schedule.  
**Ideal Target (optional):** See the attached project schedule requirements and rubric.  
**Implementation Plan (timeline):** This course is offered twice a year.  
**Key/Responsible Personnel:** The instructor of record for TADT 4897.  
**Supporting Attachments:**  
- TADT 4897 Team - Focused Project Scoring Rubric.  
- TADT 4897 Project Management Team - Focused Project Overview. |

<table>
<thead>
<tr>
<th>5 Ethics and Sustainability in Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduates will ethically employ global technologies to address social, economic and environmental issues.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Measure: CTM Exam / Technology Management Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Institution level; Direct - Other</strong></td>
</tr>
</tbody>
</table>
| **Details/Description:** Senior level students will take the ATMAE Certified Technology Management (CTM) certification exam. The Professional Core will prepare students for the CTM exam. The Ethics and Sustainability outcome will be assessed through the safety section of the ATMAE exam.  
**Acceptable Target (optional):** At least 70% of the students will achieve a passing score as determined by ATMAE. ATMAE will provide a yearly report of weaknesses and strengths in this area.  
**Ideal Target (optional):** The better qualified students are in safety management skills the greater their ability to ethically employ best practices in industrial settings to address social, economic and environmental issues.  
**Implementation Plan (timeline):** Optional student graduation requirement to be taken during their senior year.  
**Key/Responsible Personnel:** The instructor of record for any professional core course.  
**Supporting Attachments:**  
- Certified Technology Manager Exam. |

| Measure: Sustainability & Emerging Technologies |
Details/Description: Students will explore and apply sustainability and emerging practices in industrial applications through a series of assignments. The ethics and sustainability in technology will be achieved through group research presentation.

Acceptable Target (optional): At least 90% of the students will demonstrate a higher level (70 % or higher ) of performance on applying sustainability and ethical practices to address real world problems.

Ideal Target (optional): See the attached presentation/research project requirements and rubric.

Implementation Plan (timeline): This course is offered once a year.

Key/Responsible Personnel: The instructor of record for TADT 4385.

Supporting Attachments:
- SET_Research_Paper_Rubric.
- TADT 4932_SET_Ethics Sust_TaskStream_Artifact.
**Competency Validation**

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Measure: <strong>CTM Exam / Technology Management Skills</strong>&lt;br&gt;<strong>Other level; Direct - Other</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1 Technological Development and Innovation</strong></td>
<td><strong>Details/Description:</strong> Senior level students will take the ATMAE Certified Technology Management (CTM) certification exam. The Professional Core will prepare students for the CTM exam. The Technological Development and Innovation outcome will be assessed through the management section of the ATMAE exam. &lt;br&gt;&lt;br&gt;<strong>Acceptable Target (optional):</strong> At least 70% of the students will achieve a passing score as determined by ATMAE. ATMAE will provide a yearly report of weaknesses and strengths in this area. &lt;br&gt;&lt;br&gt;<strong>Ideal Target (optional):</strong> The better qualified students are in technological management skills the greater their ability to apply technological innovations to address real world problems. &lt;br&gt;&lt;br&gt;<strong>Implementation Plan (timeline):</strong> Optional student graduation requirement to be taken during their senior year. &lt;br&gt;&lt;br&gt;<strong>Key/Responsible Personnel:</strong> The instructor of record for any professional core course. &lt;br&gt;&lt;br&gt;<strong>Supporting Attachments:</strong>&lt;br&gt;&lt;br&gt;🔗 <strong>Certified Technology Manager Exam.</strong></td>
</tr>
<tr>
<td><strong>Findings for CTM Exam / Technology Management Skills</strong></td>
<td><strong>Summary of Findings:</strong> The students who have taken this exam have passed at a rate of 65.2 percent, which is 13 points higher than the national average of 52.2 percent. &lt;br&gt;&lt;br&gt;<strong>Results:</strong> Acceptable Target Achievement: Not Met; Ideal Target Achievement: Approaching</td>
</tr>
</tbody>
</table>
Reflections/Notes:

Substantiating Evidence:

[Copy of complete_10444_445 (2).xlsx]

This Findings is associated with the following Actions:

Measure: Innovation and Design in Technology
Course level; Direct - Student Artifact

Details/Description: Students will propose solutions to real world problems by completing a Major Individual Design Proposal in TADT 4537.

Acceptable Target (optional): At least 90% of the students will demonstrate a higher level (70% or higher) of performance on applying technological innovations to address real world problems. The Technological Development and Innovation outcome will be assessed through Major Individual Design Proposal.

Ideal Target (optional): See the attached proposal requirements and rubric.

Implementation Plan (timeline): This course is offered twice a year.

Key/Responsible Personnel: The instructor of record for TADT 4537.

Supporting Attachments:

4537 Major Design Proposal Assignment On-line.

Findings for Innovation and Design in Technology

Summary of Findings: Six out of 29 students achieved a grade below the 70% of the points possible. The percentage of participants who did achieve a grade of 70% or higher was: 23/29 = 0.793103448
The overall average for the course participants was: 0.805

**Results:** Acceptable Target Achievement: Not Met; Ideal Target Achievement: Approaching

**Reflections/Notes:**

**Substantiating Evidence:**

- **Ind. Desig. & Innov.**

- **This Findings is associated with the following Actions:**

**Measure:** Technical Graphics
Course level: Direct - Student Artifact

**Details/Description:** Students will work in teams to create a set of working drawings to communicate technical ideas and product development by completing a major project in TADT 1460.

**Acceptable Target (optional):** At least 90% of the students will demonstrate a higher level (70% or higher) of performance by creating technical CAD drawings to address innovations and products development. The Technological Development and Innovation outcome will be assessed through Major Individual Project.

**Ideal Target (optional):** See the attached Major Individual Project requirements and rubric.

**Implementation Plan (timeline):** This course is offered twice a year.

**Key/Responsible Personnel:** The instructor of record for TADT 1460.

**Supporting Attachments:**

- Final Project Rubric
- Major Project Guidelines
## Findings for Technical Graphics

### Summary of Findings:
Four out of 51 students achieved a grade below the 70% of the points possible.
The percentage of participants who did achieve a grade of 70% or higher was: \( \frac{47}{51} = 0.921568627 \)
The overall average for the course participants was: 84.78

### Results:
Acceptable Target Achievement: Exceeded; Ideal Target Achievement: Exceeded

### Reflections/Notes:

### Substantiating Evidence:


### Technology Transfer
Graduates will assess current knowledge for application to emerging technologies.

<table>
<thead>
<tr>
<th>Measure: CTM Exam / Technology Management Skills Institution level; Direct - Other</th>
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<tbody>
<tr>
<td>Details/Description: Senior level students will take the ATMAE Certified Technology Management (CTM) certification exam. The Professional Core will prepare students for the CTM exam. The Technology Transfer outcome will be assessed through the production section of the ATMAE exam.</td>
</tr>
<tr>
<td>Acceptable Target (optional): At least 70% of the students will achieve a passing score as determined by ATMAE. ATMAE will provide a yearly report of weaknesses and strengths in this area.</td>
</tr>
<tr>
<td>Ideal Target (optional): The better qualified students are in production strategies the greater their ability to apply and assess current knowledge of technological transfer to emerging applications.</td>
</tr>
<tr>
<td>Implementation Plan (timeline): Optional student graduation requirement to be taken during their senior year.</td>
</tr>
<tr>
<td>Key/Responsible Personnel: The instructor of record for any professional core course.</td>
</tr>
</tbody>
</table>
Supporting Attachments:

- [Certified Technology Manager Exam](#)

Findings for CTM Exam / Technology Management Skills

Summary of Findings: The students who have taken this exam have passed at a rate of 65.2 percent, which is 13 points higher than the national average of 52.2 percent.

Results: Acceptable Target Achievement: Not Met; Ideal Target Achievement: Approaching

Reflections/Notes:

Substantiating Evidence:

- [Copy of complete_10444_445 (2).xlsx](#)

This Findings is associated with the following Actions:

| Measure: Innovation and Design in Technology |
| Course level; Direct - Student Artifact |

Details/Description: Students will propose solutions to real world problems by completing a Major Individual Design Proposal in TADT 4537.

Acceptable Target (optional): At least 90% of the students will demonstrate a higher level (70 % or higher ) of performance on applying technological innovations to assess current emerging technologies. The Technology Transfer outcome will be assessed through Major Individual Design Proposal.

Ideal Target (optional): See the attached proposal requirements and rubric.

Implementation Plan (timeline): This course is offered twice a year.

Key/Responsible Personnel: The instructor of record for TADT 4537.
Supporting Attachments:

4537 Major Design Proposal Assignment On-line.

Findings for Innovation and Design in Technology

Summary of Findings: Six out of 29 students achieved a grade below the 70% of the points possible.
The percentage of participants who did achieve a grade of 70% or higher was: 23/29 = 0.793103448
The overall average for the course participants was: 0.805

Results: Acceptable Target Achievement: Not Met; Ideal Target Achievement : Approaching

Reflections/Notes:

Substantiating Evidence:

Ind. Desig. & Innov.

This Findings is associated with the following Actions:

Measure: Quality Assurance
Course level; Direct - Student Artifact

Details/Description: Students will demonstrate different principles, techniques and applications of technologies that are used in the industrial sector by completing a major case study in TADT 4878.

Acceptable Target (optional): At least 90% of the students will demonstrate a higher level (70 % or higher ) of performance on assessing current knowledge for application to quality assurance technologies. The Technology Transfer outcome will be assessed through the major case study.

Ideal Target (optional): See the attached case study requirements and rubric.

Implementation Plan (timeline): This course is offered once a
Key/Responsible Personnel: The instructor of record for TADT 4878.

Supporting Attachments:

*FINAL PROJECT – CASE STUDY GUIDELINES.*

*FINAL PROJECT – CASE STUDY Rubric*

Findings for Quality Assurance

**Summary of Findings:** Five out of 28 students achieve a grade below 70% of the points possible. The percentage of participants who did achieve a grade of 70% or higher was: 23/28= 0.821428571 The overall average for the course participants was : 78.66

**Results:** Acceptable Target Achievement: Not Met; Ideal Target Achievement : Approaching

**Reflections/Notes:**

**Substantiating Evidence:**

*Quality Assurance 4936 01_GradesExport_2014-06-18-17-10.xlsx*

This Findings is associated with the following Actions:

<table>
<thead>
<tr>
<th>3 Communication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduates will demonstrate professional communication skills and the ability to work effectively as a part of a team in a technological environment.</td>
</tr>
</tbody>
</table>

Measure: CTM Exam / Technology Management Skills

**Institution level; Direct - Other**

**Details/Description:** Senior level students will take the ATMAE Certified Technology Management (CTM) certification exam. The Professional Core will prepare students for the CTM exam. The Communication outcome will be assessed through the management section of the ATMAE exam.

**Acceptable Target (optional):** At least 70% of the students will achieve a passing score as determined by ATMAE. ATMAE will provide a yearly report of weaknesses and strengths in this
area.

**Ideal Target (optional):** The better qualified students are in technological management skills the greater their capabilities are to demonstrate professional communication skills and the ability to work effectively as a part of a team in a technological environment.

**Implementation Plan (timeline):** Optional student graduation requirement to be taken during their senior year.

**Key/Responsible Personnel:** The instructor of record for any professional core course.

**Supporting Attachments:**

Certified Technology Manager Exam.

**Findings for CTM Exam / Technology Management Skills**

**Summary of Findings:** The students who have taken this exam have passed at a rate of 65.2 percent, which is 13 points higher than the national average of 52.2 percent.

**Results:** Acceptable Target Achievement: Not Met; Ideal Target Achievement : Approaching

**Reflections/Notes :**

**Substantiating Evidence:**

Copy of complete_10444_445 (2).xlsx

**Measure:** Graduate Placement Survey  
Other level; Indirect - Survey

**Details/Description:** Graduate Placement Survey administered to all university graduates by Career Services every 2 years.

**Acceptable Target (optional):** At least 70% of each year's graduates will be employed in related field, or in graduate school, within 2 years.
**Ideal Target (optional):** The successful graduate placement of students will indicate students' abilities to demonstrate professional communication skills in interviewing abilities as developed through the Professional Core.

**Implementation Plan (timeline):** This information is reported every 3 years to the ATMAE.

**Key/Responsible Personnel:** ATMAE Accreditation Coordinator.

**Supporting Attachments:**
- [Alumni Survey Summary Data 2010.](#)
- [Graduate Placement Rates](#)

Job placement or continuing education after graduation

**Findings for Graduate Placement Survey**

**Summary of Findings:** Based on the Bemidji State data book of 2013, the graduate placement rate has increased from 73.3% in 2011 to 76.1% in 2012.

**Results:** Acceptable Target Achievement: Exceeded; Ideal Target Achievement: Exceeded

**Reflections/Notes:**

**Substantiating Evidence:**
- [Graduate Placement Rates](#)

**Measure:** Project Management
Course level; Direct - Student Artifact

**Details/Description:** Students will demonstrate the practical understanding of effective project management techniques through a team focused activity. Students will create a written and graphic project schedule by completing a team project in
TADT 4897.

**Acceptable Target (optional):** At least 90% of the students will demonstrate a higher level (70% or higher) of performance by demonstrating professional communication skills and the ability to work effectively as a part of a team in a technological environment. The Communication outcome will be assessed through creating and presenting a project schedule.

**Ideal Target (optional):** See the attached project schedule requirements and rubric.

**Implementation Plan (timeline):** This course is offered twice a year.

**Key/Responsible Personnel:** The instructor of record for TADT 4897.

**Supporting Attachments:**

- [4897 Team - Focused Project Scoring Rubric.](#)
- [TADT 4897 Project Management Team - Focused Project Overview.](#)

**Findings for Project Management**

**Summary of Findings:** - Two out of 36 students achieved a grade below 70% of the points possible. - The percentage of participants who did achieve a grade of 70% or higher was .94444 (34/36). - The overall average for the course participants was 87.76.

**Results:** Acceptable Target Achievement: Met; Ideal Target Achievement: Approaching

**Reflections/Notes:**

**Substantiating Evidence:**

- [Project Management 4938 2013 Grade Summary Report.xlsx](#)
Measure: Technical Graphics
Course level: Direct - Student Artifact

Details/Description: Students will work in teams to create a set of working drawings to communicate technical ideas and product development by completing a major project in TADT 1460.

Acceptable Target (optional): At least 90% of the students will demonstrate a higher level (70% or higher) of performance by demonstrating professional communication skills using CAD application and the ability to work effectively as a part of a team in a technological environment. The Technology Transfer outcome will be assessed through Major Individual Project.

Ideal Target (optional): See the attached Major Project requirements and rubric.

Implementation Plan (timeline): This course is offered twice a year.

Key/Responsible Personnel: The instructor of record for TADT 1460.

Supporting Attachments:

Final Project Rubric.

Major Project Guidelines.

Findings for Technical Graphics

Summary of Findings: Four out of 51 students achieved a grade below the 70% of the points possible. The percentage of participants who did achieve a grade of 70% or higher was: 47/51 = 0.921568627.
The overall average for the course participants was: 84.78

Results: Acceptable Target Achievement: Met; Ideal Target Achievement: Approaching

Reflections/Notes:
Substantiating Evidence:

Technical Graphics 1460 01_GradesExport_2014-06-18-16-47.xlsx

Measure: Technical Sales and Service Training
Course level: Direct - Student Artifact

Details/Description: Students will develop and present a technical training unit by completing a major presentation in TADT 3885.

Acceptable Target (optional): At least 90% of the students will demonstrate a higher level (70% or higher) of performance by developing professional communication skills and the ability to work effectively as a part of a team in a technological environment. The Communication outcome will be assessed through technical training unit presentation.

Ideal Target (optional): See the attached presentation requirements and rubric

Implementation Plan (timeline): This course is offered twice a year.

Key/Responsible Personnel: The instructor of record for TADT 3885.

Supporting Attachments:

3885 Lesson Presentation Rubric.

3885 Sales Presentation.

Findings for Technical Sales and Service Training

Summary of Findings: One out of 30 students achieved a grade below the 70% of the points possible. The percentage of participants who did achieve a grade of 70% or higher was:
29/30 = 0.97
The overall average for the course participants was:
### Leadership

Graduates will apply principles of leadership, management, and supervision in a variety of technological settings.

<table>
<thead>
<tr>
<th>Measure: CTM Exam / Technology Management Skills</th>
<th>Institution level; Direct - Other</th>
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<tbody>
<tr>
<td><strong>Details/Description:</strong> Senior level students will take the ATMAE Certified Technology Management (CTM) certification exam. The Professional Core will prepare students for the CTM exam. The Leadership outcome will be assessed through the management section of the ATMAE exam.</td>
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<tr>
<td><strong>Acceptable Target (optional):</strong> At least 70% of the students will achieve a passing score as determined by ATMAE. ATMAE will provide a yearly report of weaknesses and strengths in this area.</td>
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<tr>
<td><strong>Ideal Target (optional):</strong> The better qualified students are in technological management skills the greater their ability to apply principles of leadership, management, and supervision in a variety of technological settings.</td>
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<tr>
<td><strong>Implementation Plan (timeline):</strong> Optional student graduation requirement to be taken during their senior year.</td>
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<tr>
<td><strong>Key/Responsible Personnel:</strong> The instructor of record for any professional core course.</td>
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<tr>
<td><strong>Supporting Attachments:</strong></td>
<td></td>
</tr>
<tr>
<td>![Certified Technology Manager Exam](Certified Technology Manager Exam)</td>
<td></td>
</tr>
<tr>
<td><strong>Findings</strong> for CTM Exam / Technology Management Skills</td>
<td></td>
</tr>
<tr>
<td><strong>Summary of Findings:</strong> The students who have taken this exam...</td>
<td></td>
</tr>
</tbody>
</table>
have passed at a rate of 65.2 percent, which is 13 points higher than the national average of 52.2 percent.

**Results:** Acceptable Target Achievement: Not Met; Ideal Target Achievement: Approaching

**Reflections/Notes:**

**Substantiating Evidence:**

[Copy of complete_10444_445 (2).xlsx]

**Measure:** Engineering Economic & Cost Analysis
Course level; Direct - Student Artifact

**Details/Description:** Students will estimate and analyze the cost of engineering applications and practices by completing a major case study group project in TADT 3267.

**Acceptable Target (optional):** At least 90% of the students will demonstrate a higher level (70 % or higher) of performance by applying principles of leadership, management, and supervision. The Leadership outcome will be assessed through a major case study group project.

**Ideal Target (optional):** See the attached major case study group project requirements and rubric.

**Implementation Plan (timeline):** This course is offered twice a year.

**Key/Responsible Personnel:** The instructor of record for TADT 3267.

**Supporting Attachments:**

[Cast Study Project Guidelines]

[Cast Study Rubric]

**Findings** for Engineering Economic & Cost Analysis
### Summary of Findings:
Four out of 38 students achieved a grade below the 70% of the points possible.
The percentage of participants who did achieve a grade of 70% or higher was: $\frac{34}{38} = 0.894736842$
The overall average for the course participants was: $83.30833333$

### Results:
Acceptable Target Achievement: Met; Ideal Target Achievement: Approaching

### Reflections/Notes:

### Substantiating Evidence:

Eng. CostEcon. Analysis 3933 01_GradesExport

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<table>
<thead>
<tr>
<th>Measure: Facilities Management</th>
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</thead>
<tbody>
<tr>
<td>Course level; Direct - Student Artifact</td>
</tr>
</tbody>
</table>

| Details/Description: Students will research and present a topic on best practices of facilities management in TADT 4875. |

**Acceptable Target (optional):** At least 90% of the students will demonstrate a higher level (70% or higher) of performance by applying principles of leadership, management, and supervision in a variety of technological settings. The Leadership outcome will be assessed through researching and presenting a topic on best practices of facilities management.

**Ideal Target (optional):** See the attached presentation requirements and rubric.

**Implementation Plan (timeline):** This course is offered once a year

**Key/Responsible Personnel:** The instructor of record for TADT 4875.

**Supporting Attachments:**

1. [4935 FM_Presentation_Rubric](#)
2. [TADT 4935 Facilities Management Leadership](#)
**Assignment TaskStream Artifact.**

**Findings** for Facilities Management

**Summary of Findings:** 36 out of 36 students achieved a grade below the 70% of the points possible.
The percentage of participants who did achieve a grade of 70% or higher was: 100%
The overall average for the course participants was :0.926604

**Results:** Acceptable Target Achievement: Exceeded; Ideal Target Achievement : Exceeded

**Reflections/Notes:**

**Substantiating Evidence:**

*Facilities Management 4935 01 GradesExport*

**Measure:** Project Management
Course level; Direct - Student Artifact

**Details/Description:** Students will demonstrate the practical understanding of effective project management techniques through a team focused activity. Students will create a written and graphic project schedule by completing a team project in TADT 4897.

**Acceptable Target (optional):** At least 90% of the students will demonstrate a higher level (70 % or higher ) of performance by applying principles of leadership, management, and supervision in a variety of technological settings. The Leadership outcome will be assessed through creating and presenting a project schedule.

**Ideal Target (optional):** See the attached project schedule requirements and rubric.

**Implementation Plan (timeline):** This course is offered twice a year.
**Key/Responsible Personnel:** The instructor of record for TADT 4897.

**Supporting Attachments:**

- [4897 Team - Focused Project Scoring Rubric.pdf](#)
- [TADT 4897 Project Management Team - Focused Project Overview.](#)

**Findings** for Project Management

**Summary of Findings:** - Two out of 36 students achieved a grade below 70% of the points possible. - The percentage of participants who did achieve a grade of 70% or higher was .94444 (34/36). - The overall average for the course participants was 87.76.

**Results:** Acceptable Target Achievement: Met; Ideal Target Achievement: Approaching

**Reflections/Notes:**

<table>
<thead>
<tr>
<th>5 Ethics and Sustainability in Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduates will ethically employ global technologies to address social, economic and environmental issues.</td>
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</tbody>
</table>

**Measure:** CTM Exam / Technology Management Skills Institution level; Direct - Other

**Details/Description:** Senior level students will take the ATMAE Certified Technology Management (CTM) certification exam. The Professional Core will prepare students for the CTM exam. The Ethics and Sustainability outcome will be assessed through the safety section of the ATMAE exam.

**Acceptable Target (optional):** At least 70% of the students will achieve a passing score as determined by ATMAE. ATMAE will provide a yearly report of weaknesses and strengths in this area.

**Ideal Target (optional):** The better qualified students are in safety management skills the greater their ability to ethically employ best practices in industrial settings to address social,
economic and environmental issues.

**Implementation Plan (timeline):** Optional student graduation requirement to be taken during their senior year.

**Key/Responsible Personnel:** The instructor of record for any professional core course.

**Supporting Attachments:**
- Certified Technology Manager Exam.

**Findings** for CTM Exam / Technology Management Skills

**Summary of Findings:** The students who have taken this exam have passed at a rate of 65.2 percent, which is 13 points higher than the national average of 52.2 percent.

**Results:** Acceptable Target Achievement: Not Met; Ideal Target Achievement: Approaching

**Reflections/Notes:**

**Substantiating Evidence:**
- Copy of complete_10444_445 (2).xlsx

**Measure:** Sustainability & Emerging Technologies

**Course level; Direct - Student Artifact**

**Details/Description:** Students will explore and apply sustainability and emerging practices in industrial applications through a series of assignments. The ethics and sustainability in technology will be achieved through group research presentation.

**Acceptable Target (optional):** At least 90% of the students will demonstrate a higher level (70 % or higher ) of performance on applying sustainability and ethical practices to address real world problems.
**Ideal Target (optional):** See the attached presentation/research project requirements and rubric.

**Implementation Plan (timeline):** This course is offered once a year.

**Key/Responsible Personnel:** The instructor of record for TADT 4385.

**Supporting Attachments:**

- [SET_Research_Paper_Rubric](#)
- [TADT 4932_SET_Ethics Sust_TaskStream_Artifact](#)

**Findings** for Sustainability & Emerging Technologies

**Summary of Findings:** One out of 46 students achieved a grade below the 70% of the points possible. The percentage of participants who did achieve a grade of 70% or higher was: 0.97826087. The overall average for the course participants was: 87.3

**Results:** Acceptable Target Achievement: Exceeded; Ideal Target Achievement: Exceeded

**Reflections/Notes:**

**Substantiating Evidence:**

- [Sustainability&Emerg Tech 4932 90_GradesExport_2014-06-19-09-43(2).xlsx](#)