

Program Outcomes Assessment

BS in Mechanical Engineering Technology

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General Information (Program Outcomes Assessment)

Standing Requirements

📖 Mission Statement

The mission of an undergraduate BS program in Mechanical Engineering Technology (MET) is to prepare individuals by providing a comprehensive knowledge and hands-on skills in a state-of-the-art mechanical engineering technology education. The MET program perpetuates Indiana State University’s mission to educate students to become productive citizens and enhance the quality of life of the citizens of Indiana by preparing technical professionals for business and industry through a balanced curriculum.

📖 Outcomes Library

BS in Mechanical Engineering Technology

Program Educational Objective 1: Solve technical problems

Apply the latest technology and engineering tools to solve technical problems in the practice of mechanical engineering technology and related interdisciplinary fields.

Outcome	Mapping
SLO a: Appropriate mastery of techs, skills, and tools an appropriate mastery of the knowledge, techniques, skills, and modern tools of the MET discipline	No Mapping
SLO b: Apply current knowledge, adapt to emerging applications an ability to apply current knowledge and adapt to emerging applications of mathematics, science, engineering, and technology.	No Mapping
SLO c: Conduct, analyze and interpret experiments an ability to conduct, analyze and interpret experiments, and apply experimental results to improve processes.	No Mapping
SLO d: Apply creativity in the design of systems an ability to apply creativity in the design of systems, components, or processes appropriate to the MET program educational objective.	No Mapping
SLO f: Identify, analyze and solve technical problems an ability to identify, analyze and solve technical (close-ended analysis and open-ended design) problems.	Foundational Studies: 2. Critically evaluate the ideas of others.
PO 1: Develop, simulate, and analyze mechanical systems Develop, simulate, and analyze mechanical components/systems using computer-aided design and analysis tools.	No Mapping
PO 2: Select engineering materials Select engineering materials for specific applications.	No Mapping

PO 3: Identify and inspect tolerances Identify and inspect tolerances in mechanical parts and assemblies.	No Mapping
PO 4: Manage design work/processes. Manage design work/processes.	No Mapping
PO 5: Implement design and produce parts. Implement design and produce parts.	No Mapping
PO 6: Estimate cost and manage engineering projects. Estimate cost and manage engineering projects.	No Mapping
PO 7: Analyze/plan system's control and integration. Recognize the need and analyze/plan the requirement for system's control and integration.	No Mapping
PO 8: Provide an integrated educational experience Provide an integrated educational experience that develops the ability of students to apply pertinent knowledge to solving problems in MET specialty.	No Mapping

Program Educational Objective 2: Remain technically current with continuous learning

Remain technically current and adapt to rapidly changing technologies through self improvement with continuous learning or post-graduate education.

Outcome	Mapping
SLO h: Engage in lifelong learning. a recognition of the need for, and an ability to engage in lifelong learning.	No Mapping
SLO k: Quality, timeliness, and continuous improvement a commitment to quality, timeliness, and continuous improvement.	No Mapping

Program Educational Objective 3: Demonstrate independent thinking, self-management, and functioning effectively in team-oriented activities

Demonstrate independent thinking, self-management, and functioning effectively in team-oriented and open-ended activities in an industrial environment.

Outcome	Mapping
SLO e: An ability to function effectively on teams an ability to function effectively on teams.	No Mapping

Program Educational Objective 4: Communicate effectively in oral, written, and graphical forms.

Outcome	Mapping
SLO g: Communicate through engineering drawings, reports an ability to communicate effectively through engineering drawings, written reports, or oral presentations.	Foundational Studies: 10. Express themselves effectively, professionally, and persuasively both orally and in writing.

Program Educational Objective 5: Perform ethically and professionally in business, industry, and society.

Outcome	Mapping
SLO i: understand professional, ethical, social responsibility an ability to understand professional, ethical and social responsibilities.	No Mapping

Program Educational Objective 6: Develop leadership skills and responsibility in their chosen career field.

Outcome

Mapping

SLO e: An ability to function effectively on teams.
an ability to function effectively on teams.

No Mapping

Program Educational Objective 7: Understand global issues and the impact of technology and engineering solutions

Understand global issues and the impact of technology and engineering solutions on the society and environment.

Outcome

Mapping

SLO j: A respect for diversity
a respect for diversity and a knowledge of contemporary
professional, societal and global issues.

No Mapping

 **Curriculum Map**

Active Curriculum Maps 

 **BS in Mechanical Engineering Technology** (See appendix)

Alignment Set: BS in Mechanical Engineering Technology

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 **Communication of Outcomes**

The MET program's educational objectives are published in the university's online catalog and the department web site and are posted on the MET display board.

Web Links:

1. MET Educational Objectives and Program Outcomes

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

Archive

File Attachments:

- 1. Mechanical Engineering Technology Program** (See appendix)
Mechanical Engineering Technology Program Assessment Plan

2012-2013 Assessment Cycle

Assessment Plan

Outcomes and Measures

BS in Mechanical Engineering Technology

Program Educational Objective 1: Solve technical problems

Apply the latest technology and engineering tools to solve technical problems in the practice of mechanical engineering technology and related interdisciplinary fields.

SLO f: Identify, analyze and solve technical problems

an ability to identify, analyze and solve technical (close-ended analysis and open-ended design) problems.

▼ Measure: Faculty survey Indirect - Survey

Details/Description:

Target:

Implementation Plan (timeline): Spring 2013 and every three years thereafter

Responsible Individual(s): MET program coordinator

▼ Measure: Student survey Indirect - Survey

Details/Description:

Target:

Implementation Plan (timeline): Spring 2013 and every three years thereafter

Responsible Individual(s): MET program coordinator

Supporting Attachments:

 MET Student Survey.pdf (Adobe Acrobat Document) (See appendix)

▼ Measure: Student work samples from MET 408 and 409 Direct - Student Artifact

Details/Description: Student work samples from MET 403, 405, 406, 408, 409 and 413 are collected and the quality of the samples is satisfactory, based on the rubric created for each course

Target:

Implementation Plan (timeline): Spring 2013 and every three years thereafter

Responsible Individual(s): MET program coordinator

PO 1: Develop, simulate, and analyze mechanical systems

Develop, simulate, and analyze mechanical components/systems using computer-aided design and analysis tools.

▼ Measure: Student survey Indirect - Survey

Details/Description:

Target:

Implementation Plan (timeline): Spring 2013 and every three years thereafter

Responsible Individual(s): MET program coordinator

▼ **Measure:** Student work samples from MET 403

Details/Description:

Target:

Implementation Plan (timeline): Spring 2013 and every three years thereafter

Responsible Individual(s): MET program coordinator

PO 2: Select engineering materials

Select engineering materials for specific applications.

▼ **Measure:** Student survey
Indirect - Survey

Details/Description:

Target:

Implementation Plan (timeline): Fall 2012 and every three years thereafter

Responsible Individual(s): MET program coordinator

▼ **Measure:** Student work samples from MET 406
Direct - Student Artifact

Details/Description:

Target:

Implementation Plan (timeline): Fall 2012 and every three years thereafter

Responsible Individual(s): MET program coordinator

PO 3: Identify and inspect tolerances

Identify and inspect tolerances in mechanical parts and assemblies.

▼ **Measure:** Student survey
Indirect - Survey

Details/Description:

Target:

Implementation Plan (timeline): Fall 2012 and every three years thereafter

Responsible Individual(s): MET program coordinator

▼ **Measure:** Student work samples from MET 413
Direct - Student Artifact

Details/Description: Evaluate student work using rubric on training program

Target:

Implementation Plan (timeline): Fall 2012 and every three years thereafter

Responsible Individual(s): MET program coordinator

Program Educational Objective 3: Demonstrate independent thinking, self-management, and functioning effectively in team-oriented activities

Demonstrate independent thinking, self-management, and functioning effectively in team-oriented and open-ended activities in an industrial environment.

SLO e: An ability to function effectively on teams

▼ **Measure:** Faculty survey
Indirect - Survey

an ability to function effectively on teams.

Details/Description:

Target:

Implementation Plan (timeline): Spring 2013 and every three years thereafter

Responsible Individual(s): MET program coordinator

▼ **Measure:** Student survey
Indirect - Survey

Details/Description:

Target:

Implementation Plan (timeline): Spring 2013 and every three years thereafter

Responsible Individual(s): MET program coordinator

▼ **Measure:** Student work samples from MET 405 and 409
Direct - Student Artifact

Details/Description:

Target:

Implementation Plan (timeline): Spring 2013 and every three years thereafter

Responsible Individual(s): MET program coordinator

 **Assessment Findings**

Finding per Measure

BS in Mechanical Engineering Technology

Program Educational Objective 1: Solve technical problems

Apply the latest technology and engineering tools to solve technical problems in the practice of mechanical engineering technology and related interdisciplinary fields.

SLO f: Identify, analyze and solve technical problems

an ability to identify, analyze and solve technical (close-ended analysis and open-ended design) problems.

▼ **Measure:** Faculty survey
Indirect - Survey

Details/Description:

Target:

Implementation Plan (timeline): Spring 2013 and every three years thereafter

Responsible Individual(s): MET program coordinator

Findings for Faculty survey

Summary of Findings: Three responses to the survey in Fall 2012:.

Question 8: Benchmark (Average Score on survey) = 86.67%

Question 9: Benchmark (Average Score on survey) = 93.33%


Results: Target Achievement: Met

Recommendations : Good: No action

Reflections/Notes : The Assessment Findings and Action Plan document attached below

contains all findings for 2012-13 and has been uploaded only in this area.

Substantiating Evidence:

 MET Assessment Finding and Action Plan_F12-Sp13.pdf (Adobe Acrobat Document) (See appendix)

▼ **Measure:** Student survey
Indirect - Survey

Details/Description:

Target:

Implementation Plan (timeline): Spring 2013 and every three years thereafter

Responsible Individual(s): MET program coordinator

Supporting Attachments:

 MET Student Survey.pdf (Adobe Acrobat Document) (See appendix)

Findings for Student survey

Summary of Findings: On a scale from (1) to (5), please rate how well this course has helped you to perform the following outcomes.
(1= Very dissatisfied, 5 = Very satisfied). If anything is not applicable to this course, check 'NA.'

In Spring 2013, 40 students completed the survey in MET 302, 306, 351, 404, 405, 406, 408, and 409.

Q 8: The Benchmark (Average score on survey) was 67.00%

Q 9: The Benchmark (Average score on survey) was 72.50%

Results: Target Achievement: Met

Recommendations : Good: No action

Reflections/Notes :

▼ **Measure:** Student work samples from MET 408 and 409
Direct - Student Artifact

Details/Description: Student work samples from MET 403, 405, 406, 408, 409 and 413 are collected and the quality of the samples is satisfactory, based on the rubric created for each course

Target:

Implementation Plan (timeline): Spring 2013 and every three years thereafter

Responsible Individual(s): MET program coordinator

Findings for Student work samples from MET 408 and 409

Summary of Findings: Analysis Rubric (for assignments/projects requiring a process formulation to get results - MET 403, 405, 406, 408, 413).

Nine student work samples were evaluated according to the rubric. Results shows that for each of the five traits:

Poor = 1

Acceptable = 3

Excellent = 5

Report Rubric (for Senior Project in Industrial Technology - MET 409)

Poor = 1
Acceptable = 3
Excellent = 5

Results: Target Achievement: Met

Recommendations :

Reflections/Notes :

PO 1: Develop, simulate, and analyze mechanical systems

Develop, simulate, and analyze mechanical components/systems using computer-aided design and analysis tools.

▼ **Measure:** Student survey
Indirect - Survey

Details/Description:

Target:

Implementation Plan (timeline): Spring 2013 and every three years thereafter

Responsible Individual(s): MET program coordinator

Findings for Student survey

Summary of Findings: On a scale from (1) to (5), please rate how well this course has helped you to perform the following outcomes.
(1= Very dissatisfied, 5 = Very satisfied). If anything is not applicable to this course, check 'NA.'

In Spring 2013, 40 students completed the survey in MET 203 and 403.

Q 16: The Benchmark (Average score on survey) was 74.00%

Q 17: The Benchmark (Average score on survey) was 66.50%

Q 18: The Benchmark (Average score on survey) was 65.00%

Results: Target Achievement: Met

Recommendations : Good: No action

Reflections/Notes :

▼ **Measure:** Student work samples from MET 403

Details/Description:

Target:

Implementation Plan (timeline): Spring 2013 and every three years thereafter

Responsible Individual(s): MET program coordinator

Findings for Student work samples from MET 403

Summary of Findings: Analysis Rubric (for assignments/projects requiring a process formulation to get results - MET 403, 405, 406, 408, 413).

Nine student work samples were evaluated according to the rubric. Results shows that for each of the five traits:

Poor = 1

Acceptable = 3
Excellent = 5

Results: Target Achievement: Met

Recommendations :

Reflections/Notes :

PO 2: Select engineering materials

Select engineering materials for specific applications.

▼ **Measure:** Student survey Indirect - Survey

Details/Description:

Target:

Implementation Plan (timeline): Fall 2012 and every three years thereafter

Responsible Individual(s): MET program coordinator

Findings for Student survey

Summary of Findings: On a scale from (1) to (5), please rate how well this course has helped you to perform the following outcomes.
(1= Very dissatisfied, 5 = Very satisfied). If anything is not applicable to this course, check 'NA.'

In Fall 2012, 53 students completed the survey in MET 404, 413, 306, and 406.

Q 19: The Benchmark (Average score on the survey) = 76.98%

Results: Target Achievement: Met

Recommendations : Good: No action

Reflections/Notes :

▼ **Measure:** Student work samples from MET 406 Direct - Student Artifact

Details/Description:

Target:

Implementation Plan (timeline): Fall 2012 and every three years thereafter

Responsible Individual(s): MET program coordinator

Findings for Student work samples from MET 406

Summary of Findings: Analysis Rubric (for assignments/projects requiring a process formulation to get results - MET 403, 405, 406, 408, 413).

Nine student work samples were evaluated according to the rubric. Results shows that for each of the five traits:

Poor = 1

Acceptable = 3

Excellent = 5

Results: Target Achievement: Met

Recommendations :

Reflections/Notes :

PO 3: Identify and inspect tolerances

Identify and inspect tolerances in mechanical parts and assemblies.

▼ **Measure:** Student survey
Indirect - Survey

Details/Description:

Target:

Implementation Plan (timeline): Fall 2012 and every three years thereafter

Responsible Individual(s): MET program coordinator

Findings for Student survey

Summary of Findings: In Fall 2012, 53 students completed the survey in MET 404, 413, 306, and 406.

Q 20: The average of the responses was 3.94. (AVG% = 78.87)

Results: Target Achievement: Met

Recommendations : Good: No action

Reflections/Notes : On a scale from (1) to (5), please rate how well this course has helped you to perform the following outcomes.
(1= Very dissatisfied, 5 = Very satisfied). If anything is not applicable to this course, check 'NA.'

▼ **Measure:** Student work samples from MET 413
Direct - Student Artifact

Details/Description: Evaluate student work using rubric on training program

Target:

Implementation Plan (timeline): Fall 2012 and every three years thereafter

Responsible Individual(s): MET program coordinator

Findings for Student work samples from MET 413

Summary of Findings: Analysis Rubric (for assignments/projects requiring a process formulation to get results - MET 403, 405, 406, 408, 413).

Nine student work samples were evaluated according to the rubric. Results shows that for each of the five traits:

Poor = 1
Acceptable = 3
Excellent = 5

Results: Target Achievement: Met

Recommendations :

Reflections/Notes :

Program Educational Objective 3: Demonstrate independent thinking, self-management, and functioning effectively in team-oriented activities

Demonstrate independent thinking, self-management, and functioning effectively in team-oriented and open-ended activities in an

industrial environment.

SLO e: An ability to function effectively on teams

an ability to function effectively on teams.

▼ **Measure:** Faculty survey
Indirect - Survey

Details/Description:

Target:

Implementation Plan (timeline): Spring 2013 and every three years thereafter

Responsible Individual(s): MET program coordinator

Findings for Faculty survey

Summary of Findings: Three responses to the survey in Fall 2012:.

Question 7: Benchmark (Average Score on survey) = 93.33%

Results: Target Achievement: Met

Recommendations :

Reflections/Notes :

▼ **Measure:** Student survey
Indirect - Survey

Details/Description:

Target:

Implementation Plan (timeline): Spring 2013 and every three years thereafter

Responsible Individual(s): MET program coordinator

Findings for Student survey

Summary of Findings: On a scale from (1) to (5), please rate how well this course has helped you to perform the following outcomes.
(1= Very dissatisfied, 5 = Very satisfied). If anything is not applicable to this course, check 'NA.'

In Spring 2013, 40 students completed the survey in MET 404, 413,306, and 406.

Q 7: Benchmark (Average score on survey) = 79.50%

Results: Target Achievement: Met

Recommendations : Good: No action

Reflections/Notes : On a scale from (1) to (5), please rate how well this course has helped you to perform the following outcomes.
(1= Very dissatisfied, 5 = Very satisfied). If anything is not applicable to this course, check 'NA.'

▼ **Measure:** Student work samples from MET 405 and 409
Direct - Student Artifact

Details/Description:

Target:

Implementation Plan (timeline): Spring 2013 and every three years thereafter

Responsible Individual(s): MET program coordinator

Findings for Student work samples from MET 405 and 409

Summary of Findings: Analysis Rubric (for assignments/projects requiring a process formulation to get results - MET 403, 405, 406, 408, 413).

Nine student work samples were evaluated according to the rubric. Results shows that for each of the five traits:

Poor = 1
Acceptable = 3
Excellent = 5

Report Rubric (for Senior Project in Industrial Technology - MET 409)

Poor = 1
Acceptable = 3
Excellent = 5

Results: Target Achievement: Met

Recommendations : Good: No action

Reflections/Notes :

Overall Recommendations

No text specified

Overall Reflection

No text specified

 **Action Plan**

Actions

BS in Mechanical Engineering Technology

Action Plan

Action Plan

▼ **Action:** Continue to monitor

This Action is associated with the following Findings

No supporting Findings have been linked to this Action.

Action Details: Student and faculty survey responses and student achievement on work samples satisfactory. Continue to monitor and reassess in three years.

Implementation Plan (timeline): Reassess in 2015-16

Key/Responsible Personnel: MET Program Director

Measures: outcomes data collected, analyzed, and reported

Resource Allocations: none

Priority: Medium

❏ Status Report

Action Statuses

BS in Mechanical Engineering Technology

Action Plan

Action Plan

▼ **Action:** Continue to monitor

Action Details: Student and faculty survey responses and student achievement on work samples satisfactory. Continue to monitor and reassess in three years.

Implementation Plan (timeline): Reassess in 2015-16

Key/Responsible Personnel: MET Program Director

Measures: outcomes data collected, analyzed, and reported

Resource Allocations: none

Priority: Medium

.....
Status for Continue to monitor

Current Status: Completed

Resource Allocation(s) Status:

Next Steps/Additional Information: continue to monitor and reassess in three years

Status Summary

continue to monitor and reassess in three years

Summary of Next Steps

No text specified

2013-2014 Assessment Cycle

Assessment Plan

Outcomes and Measures

BS in Mechanical Engineering Technology

Program Educational Objective 1: Solve technical problems

Apply the latest technology and engineering tools to solve technical problems in the practice of mechanical engineering technology and related interdisciplinary fields.

SLO a: Appropriate mastery of techs, skills, and tools

an appropriate mastery of the knowledge, techniques, skills, and modern tools of the MET discipline

▼ Measure: Faculty survey Indirect - Survey


Details/Description: Selected items from survey of program faculty

Target: Benchmark (Average score on survey) will be 60%

Implementation Plan (timeline): Spring 2014 and every three years thereafter

Responsible Individual(s): MET program coordinator

Supporting Attachments:

 MET Assessment Plan_F13-Sp14.pdf (Adobe Acrobat Document) (See appendix)

▼ Measure: Student survey Indirect - Survey

Details/Description: Selected items from student survey

Target: Benchmark (Average score on survey) will be 60%

Implementation Plan (timeline): Spring 2014 and every three years thereafter

Responsible Individual(s): MET program coordinator

▼ Measure: Student work samples from MET 409 Direct - Student Artifact


Details/Description: rubric used to evaluate samples of student work produced in MET 409

Target:

Implementation Plan (timeline): Spring 2014 and every three years thereafter

Responsible Individual(s): MET program coordinator

Supporting Attachments:

 MET Assessment_Student Work Rubrics_F13-Sp14.pdf (Adobe Acrobat Document) (See appendix)

SLO b: Apply current knowledge, adapt to emerging applications

an ability to apply current

▼ Measure: Faculty survey Indirect - Survey


knowledge and adapt to emerging applications of mathematics, science, engineering, and technology.

Details/Description: Selected items from survey of program faculty
Target: Benchmark (Average score on survey) will be 60%
Implementation Plan (timeline): Spring 2014 and every three years thereafter
Responsible Individual(s): MET program coordinator

▼ **Measure:** Student survey
Indirect - Survey

Details/Description: Selected items from student survey
Target: Benchmark (Average score on survey) will be 60%
Implementation Plan (timeline): Spring 2014 and every three years thereafter
Responsible Individual(s): MET program coordinator

▼ **Measure:** Student work samples from MET 302 and 304
Direct - Student Artifact

Details/Description: rubric used to evaluate samples of student work produced in MET 302 and 304
Target:
Implementation Plan (timeline): Spring 2014 and every three years thereafter
Responsible Individual(s): MET program coordinator
Supporting Attachments:
 MET Assessment_Student Work Rubrics_F13-Sp14.pdf (Adobe Acrobat Document) (See appendix)

SLO c: Conduct, analyze and interpret experiments

an ability to conduct, analyze and interpret experiments, and apply experimental results to improve processes.

▼ **Measure:** Faculty survey
Indirect - Survey

Details/Description: Selected items from survey of program faculty
Target: Benchmark (Average score on survey) will be 60%
Implementation Plan (timeline): Spring 2014 and every three years thereafter
Responsible Individual(s): MET program coordinator

▼ **Measure:** Student survey
Indirect - Survey

Details/Description: Selected items from student survey
Target: Benchmark (Average score on survey) will be 60%
Implementation Plan (timeline): Fall 2013 and every three years thereafter
Responsible Individual(s): MET program coordinator


▼ **Measure:** Student work samples from MET 329 and MFG 371
Direct - Student Artifact

Details/Description: rubric used to evaluate samples of student work produced in MET 329 and MFG 371
Target:

Implementation Plan (timeline): Fall 2013 and every three years thereafter

Responsible Individual(s): MET program coordinator

Supporting Attachments:

 MET Assessment_Student Work Rubrics_F13-Sp14.pdf (Adobe Acrobat Document) (See appendix)

PO 4: Manage design work/processes.

Manage design work/processes.

▼ **Measure:** Student survey
Indirect - Survey

Details/Description: Selected items from student survey

Target: Benchmark (Average score on survey) will be 60%

Implementation Plan (timeline): Fall 2013 and every three years thereafter

Responsible Individual(s): MET program coordinator

▼ **Measure:** Student work samples from MET 404
Direct - Student Artifact


Details/Description: rubric used to evaluate samples of student work produced in MET 404

Target:

Implementation Plan (timeline): Fall 2013 and every three years thereafter

Responsible Individual(s): MET program coordinator

Supporting Attachments:

 MET Assessment_Student Work Rubrics_F13-Sp14.pdf (Adobe Acrobat Document) (See appendix)

Program Educational Objective 2: Remain technically current with continuous learning

Remain technically current and adapt to rapidly changing technologies through self improvement with continuous learning or post-graduate education.

SLO h: Engage in lifelong learning.

a recognition of the need for, and an ability to engage in lifelong learning.

▼ **Measure:** Homework in MET 430
Direct - Student Artifact

Details/Description:

Target:

Implementation Plan (timeline): Fall 2013 and every three years thereafter

Responsible Individual(s): MET program coordinator

▼ **Measure:** Membership in professional societies
Indirect - Other

Details/Description: Students will be polled concerning their membership in professional societies

Target:

Implementation Plan (timeline): Fall 2013 and every three years thereafter

Responsible Individual(s): MET program coordinator

SLO k: Quality, timeliness, and continuous improvement

▼ **Measure:** Faculty survey
Indirect - Survey


a commitment to quality, timeliness, and continuous improvement.

Details/Description: Selected items from survey of program faculty
Target: Benchmark (Average score on survey) will be 60%
Implementation Plan (timeline): Spring 2014 and every three years thereafter
Responsible Individual(s): MET program coordinator

▼ **Measure:** Student survey
Indirect - Survey

Details/Description: Selected items from student survey
Target: Benchmark (Average score on survey) will be 60%
Implementation Plan (timeline): Fall 2013 / Spring 2014 and every three years thereafter
Responsible Individual(s): MET program coordinator

▼ **Measure:** Student work samples from MET 404 and 409
Direct - Student Artifact

Details/Description: proposing and committing a timeline to finish steps of the project, improving quality (continuous improvement) from proposal phase to final phase,
Target:
Implementation Plan (timeline): Fall 2013 / Spring 2014 and every three years thereafter
Responsible Individual(s): MET program coordinator
Supporting Attachments:
 MET Assessment_Student Work Rubrics_F13-Sp14.pdf (Adobe Acrobat Document) (See appendix)

Program Educational Objective 4: Communicate effectively in oral, written, and graphical forms.

SLO g: Communicate through engineering drawings, reports

an ability to communicate effectively through engineering drawings, written reports, or oral presentations.

▼ **Measure:** Faculty survey
Indirect - Survey

Details/Description: Selected items from survey of program faculty
Target: Benchmark (Average score on survey) will be 60%
Implementation Plan (timeline): Spring 2014 and every three years thereafter
Responsible Individual(s): MET program coordinator

▼ **Measure:** Student survey
Indirect - Survey

Details/Description: Selected items from student survey
Target: Benchmark (Average score on survey) will be 60%
Implementation Plan (timeline): Spring 2014 and every three years thereafter
Responsible Individual(s): MET program coordinator


▼ **Measure:** Student work samples from MET 403 and 409
Direct - Student Artifact

Details/Description:
Target:

Implementation Plan (timeline): Spring 2014 and every three years thereafter

Responsible Individual(s): MET program coordinator

Supporting Attachments:

 MET Assessment_Student Work Rubrics_F13-Sp14.pdf (Adobe Acrobat Document) (See appendix)

Assessment Findings

Finding per Measure

BS in Mechanical Engineering Technology

Program Educational Objective 1: Solve technical problems

Apply the latest technology and engineering tools to solve technical problems in the practice of mechanical engineering technology and related interdisciplinary fields.

SLO a: Appropriate mastery of techs, skills, and tools

an appropriate mastery of the knowledge, techniques, skills, and modern tools of the MET discipline

▼ **Measure:** Faculty survey Indirect - Survey


Details/Description: Selected items from survey of program faculty

Target: Benchmark (Average score on survey) will be 60%

Implementation Plan (timeline): Spring 2014 and every three years thereafter

Responsible Individual(s): MET program coordinator

Supporting Attachments:

 MET Assessment Plan_F13-Sp14.pdf (Adobe Acrobat Document) (See appendix)

Findings for Faculty survey

Summary of Findings: Three responses to the survey in Spring 2014:

Question 1: Benchmark (Average Score on survey) = 86.67%

Question 2: Benchmark (Average Score on survey) = 93.33%

Results: Target Achievement: Exceeded

Recommendations :

Reflections/Notes :

▼ **Measure:** Student survey Indirect - Survey

Details/Description: Selected items from student survey

Target: Benchmark (Average score on survey) will be 60%

Implementation Plan (timeline): Spring 2014 and every three years thereafter

Responsible Individual(s): MET program coordinator

Findings for Student survey

Summary of Findings: 53 responses to the survey in Spring 2014:

Question 1: Benchmark (Average Score on survey) = 84.53%

Question 2: Benchmark (Average Score on survey) = 83.02%

Results: Target Achievement: Exceeded

Recommendations :

Reflections/Notes :

▼ **Measure:** Student work samples from MET 409
Direct - Student Artifact


Details/Description: rubric used to evaluate samples of student work produced in MET 409

Target:

Implementation Plan (timeline): Spring 2014 and every three years thereafter

Responsible Individual(s): MET program coordinator

Supporting Attachments:

 MET Assessment_Student Work Rubrics_F13-Sp14.pdf (Adobe Acrobat Document) (See appendix)

Findings for Student work samples from MET 409

Summary of Findings: Data not provided

Recommendations :

Reflections/Notes :

SLO b: Apply current knowledge, adapt to emerging applications

an ability to apply current knowledge and adapt to emerging applications of mathematics, science, engineering, and technology.

▼ **Measure:** Faculty survey
Indirect - Survey

Details/Description: Selected items from survey of program faculty

Target: Benchmark (Average score on survey) will be 60%

Implementation Plan (timeline): Spring 2014 and every three years thereafter

Responsible Individual(s): MET program coordinator

Findings for Faculty survey

Summary of Findings: Three responses to the survey in Spring 2014:

Question 3: Benchmark (Average Score on survey) = 93.33%

Results: Target Achievement: Exceeded

Recommendations :

Reflections/Notes :

▼ **Measure:** Student survey
Indirect - Survey

Details/Description: Selected items from student survey

Target: Benchmark (Average score on survey) will be 60%
Implementation Plan (timeline): Spring 2014 and every three years thereafter
Responsible Individual(s): MET program coordinator

Findings for Student survey

Summary of Findings: 53 responses to the survey in Fall 2013:

Question 3: Benchmark (Average Score on survey) = 88.30%

Results: Target Achievement: Exceeded

Recommendations :

Reflections/Notes :

▼ **Measure:** Student work samples from MET 302 and 304
Direct - Student Artifact


Details/Description: rubric used to evaluate samples of student work produced in MET 302 and 304

Target:

Implementation Plan (timeline): Spring 2014 and every three years thereafter

Responsible Individual(s): MET program coordinator

Supporting Attachments:

 MET Assessment_Student Work Rubrics_F13-Sp14.pdf (Adobe Acrobat Document) (See appendix)

Findings for Student work samples from MET 302 and 304

Summary of Findings: Data not provided

Recommendations :

Reflections/Notes :

SLO c: Conduct, analyze and interpret experiments

an ability to conduct, analyze and interpret experiments, and apply experimental results to improve processes.

▼ **Measure:** Faculty survey
Indirect - Survey

Details/Description: Selected items from survey of program faculty

Target: Benchmark (Average score on survey) will be 60%

Implementation Plan (timeline): Spring 2014 and every three years thereafter

Responsible Individual(s): MET program coordinator

Findings for Faculty survey

Summary of Findings: Three responses to the survey in Fall 2013:.

Question 4: Benchmark (Average Score on survey) = 53.33%

Question 5: Benchmark (Average Score on survey) = 53.33%

Question 6: Benchmark (Average Score on survey) = 60.00%

Results: Target Achievement: Not Met

Recommendations :

Reflections/Notes :

These Findings are associated with the following Actions:

Continue to monitor LO:c

(Action Plan; 2013-2014 Assessment Cycle)

▼ **Measure:** Student survey
Indirect - Survey

Details/Description: Selected items from student survey

Target: Benchmark (Average score on survey) will be 60%

Implementation Plan (timeline): Fall 2013 and every three years thereafter

Responsible Individual(s): MET program coordinator

Findings for Student survey

Summary of Findings: 58 responses to the survey in Fall 2013:

Question 4: Benchmark (Average Score on survey) = 57.59%

Question 5: Benchmark (Average Score on survey) = 48.97%

Question 6: Benchmark (Average Score on survey) = 75.17%

Results: Target Achievement: Not Met

Recommendations :

Reflections/Notes :

These Findings are associated with the following Actions:

Continue to monitor LO:c

(Action Plan; 2013-2014 Assessment Cycle)

▼ **Measure:** Student work samples from MET 329 and MFG 371
Direct - Student Artifact


Details/Description: rubric used to evaluate samples of student work produced in MET 329 and MFG 371

Target:

Implementation Plan (timeline): Fall 2013 and every three years thereafter

Responsible Individual(s): MET program coordinator

Supporting Attachments:

 MET Assessment_Student Work Rubrics_F13-Sp14.pdf (Adobe Acrobat Document) (See appendix)

Findings for Student work samples from MET 329 and MFG 371

Summary of Findings: Data not provided

Recommendations :

Reflections/Notes :

PO 4: Manage design work/processes.

Manage design work/processes.

▼ **Measure:** Student survey
Indirect - Survey

Details/Description: Selected items from student survey
Target: Benchmark (Average score on survey) will be 60%
Implementation Plan (timeline): Fall 2013 and every three years thereafter
Responsible Individual(s): MET program coordinator

Findings for Student survey


Summary of Findings: Data not provided

Recommendations :

Reflections/Notes :

▼ **Measure:** Student work samples from MET 404
Direct - Student Artifact

Details/Description: rubric used to evaluate samples of student work produced in MET 404
Target:
Implementation Plan (timeline): Fall 2013 and every three years thereafter
Responsible Individual(s): MET program coordinator
Supporting Attachments:

 MET Assessment_Student Work Rubrics_F13-Sp14.pdf (Adobe Acrobat Document) (See appendix)

Findings for Student work samples from MET 404

Summary of Findings: Data not provided

Recommendations :

Reflections/Notes :

Program Educational Objective 2: Remain technically current with continuous learning

Remain technically current and adapt to rapidly changing technologies through self improvement with continuous learning or post-graduate education.

SLO h: Engage in lifelong learning.

a recognition of the need for, and an ability to engage in lifelong learning.

▼ **Measure:** Homework in MET 430
Direct - Student Artifact

Details/Description:
Target:
Implementation Plan (timeline): Fall 2013 and every three years thereafter
Responsible Individual(s): MET program coordinator

Findings for Homework in MET 430

Summary of Findings: Data not provided

Recommendations :

Reflections/Notes :

▼ **Measure:** Membership in professional societies Indirect - Other

Details/Description: Students will be polled concerning their membership in professional societies

Target:

Implementation Plan (timeline): Fall 2013 and every three years thereafter

Responsible Individual(s): MET program coordinator

Findings for Membership in professional societies

Summary of Findings: Data not provided

Recommendations :

Reflections/Notes :

SLO k: Quality, timeliness, and continuous improvement

a commitment to quality, timeliness, and continuous improvement.

▼ **Measure:** Faculty survey Indirect - Survey

Details/Description: Selected items from survey of program faculty

Target: Benchmark (Average score on survey) will be 60%

Implementation Plan (timeline): Spring 2014 and every three years thereafter

Responsible Individual(s): MET program coordinator

Findings for Faculty survey

Summary of Findings: Three responses to the survey in Fall 2013:

Question 16: Benchmark (Average Score on survey) = 93.33

Question 17: Benchmark (Average Score on survey) = 100.00%

Three responses to the survey in Spring 2014:

Question 16: Benchmark (Average Score on survey) = 93.33%

Question 17: Benchmark (Average Score on survey) = 100.00%

Results: Target Achievement: Exceeded

Recommendations :

Reflections/Notes :

▼ **Measure:** Student survey
Indirect - Survey

Details/Description: Selected items from student survey

Target: Benchmark (Average score on survey) will be 60%

Implementation Plan (timeline): Fall 2013 / Spring 2014 and every three years thereafter

Responsible Individual(s): MET program coordinator

Findings for Student survey

Summary of Findings: 58 responses to the survey in Fall 2013:

Question 16: Benchmark (Average Score on survey) = 87.24%

Question 17: Benchmark (Average Score on survey) = 76.21%

53 responses to the survey in Spring 2014:

Question 16: Benchmark (Average Score on survey) = 88.68%

Question 17: Benchmark (Average Score on survey) = 85.28%

Results: Target Achievement: Exceeded

Recommendations :

Reflections/Notes :

▼ **Measure:** Student work samples from MET 404 and 409
Direct - Student Artifact


Details/Description: proposing and committing a timeline to finish steps of the project, improving quality (continuous improvement) from proposal phase to final phase,

Target:

Implementation Plan (timeline): Fall 2013 / Spring 2014 and every three years thereafter

Responsible Individual(s): MET program coordinator

Supporting Attachments:

 MET Assessment_Student Work Rubrics_F13-Sp14.pdf (Adobe Acrobat Document) (See appendix)

Findings for Student work samples from MET 404 and 409

Summary of Findings: Data not provided

Recommendations :

Reflections/Notes :

Program Educational Objective 4: Communicate effectively in oral, written, and graphical forms.

SLO g: Communicate through engineering drawings, reports

an ability to communicate

▼ **Measure:** Faculty survey
Indirect - Survey

effectively through engineering drawings, written reports, or oral presentations.

Details/Description: Selected items from survey of program faculty
Target: Benchmark (Average score on survey) will be 60%
Implementation Plan (timeline): Spring 2014 and every three years thereafter
Responsible Individual(s): MET program coordinator

Findings for Faculty survey

Summary of Findings: Three responses to the survey in Spring 2014:

Question 11: Benchmark (Average Score on survey) = 60.00%

Question 12: Benchmark (Average Score on survey) = 93.33%

Results: Target Achievement: Exceeded

Recommendations :

Reflections/Notes :

▼ **Measure:** Student survey
Indirect - Survey

Details/Description: Selected items from student survey
Target: Benchmark (Average score on survey) will be 60%
Implementation Plan (timeline): Spring 2014 and every three years thereafter
Responsible Individual(s): MET program coordinator

Findings for Student survey

Summary of Findings: 53 responses to the survey in Fall 2013:

Question 11: Benchmark (Average Score on survey) = 74.34%

Question 12: Benchmark (Average Score on survey) = 83.02%


Results: Target Achievement: Exceeded

Recommendations :

Reflections/Notes :

▼ **Measure:** Student work samples from MET 403 and 409
Direct - Student Artifact

Details/Description:
Target:
Implementation Plan (timeline): Spring 2014 and every three years thereafter
Responsible Individual(s): MET program coordinator
Supporting Attachments:

 MET Assessment_Student Work Rubrics_F13-Sp14.pdf (Adobe Acrobat Document) (See appendix)

Findings for Student work samples from MET 403 and 409

Summary of Findings: Data not provided

Recommendations :

Reflections/Notes :

Overall Recommendations

No text specified

Overall Reflection

No text specified

📄 Action Plan

Actions

BS in Mechanical Engineering Technology

Program Educational Objective 1: Solve technical problems

Apply the latest technology and engineering tools to solve technical problems in the practice of mechanical engineering technology and related interdisciplinary fields.

SLO c: Conduct, analyze and interpret experiments

an ability to conduct, analyze and interpret experiments, and apply experimental results to improve processes.

▼ **Action:** Continue to monitor LO:c

This Action is associated with the following Findings

Findings for Faculty survey

(Assessment Plan and Assessment Findings; 2013-2014 Assessment Cycle)

Summary of Findings: Three responses to the survey in Fall 2013:.

Question 4: Benchmark (Average Score on survey) = 53.33%

Question 5: Benchmark (Average Score on survey) = 53.33%

Question 6: Benchmark (Average Score on survey) = 60.00%

Findings for Student survey

(Assessment Plan and Assessment Findings; 2013-2014 Assessment Cycle)

Summary of Findings: 58 responses to the survey in Fall 2013:

Question 4: Benchmark (Average Score on survey) = 57.59%

Question 5: Benchmark (Average Score on survey) = 48.97%

Question 6: Benchmark (Average Score on survey) = 75.17%

Action Details: Date: Nov. 13th, 2014

Subject: MET faculty meeting

Location: AETM Dept. Office

Present Faculties: Affan Badar, Todd Alberts, and Mehran Shahhosseini

Mehran presented the assessment data from MET students and faculties for the 2013-14 cycle. All the assessment results showed that the students and faculties achieved the target except one learning outcome, LO:c. These LO scores were 49%, 53%, and 58%; whereas the average needed score on the survey is 60%.

In the previous cycles, the target was met for this outcome assessment. Faculty discussed that this cycle assessment might be just one of a kind. It is better to wait for the next assessment cycle

before we decide to recommend any action.

Implementation Plan (timeline):

Key/Responsible Personnel:

Measures:

Resource Allocations:

Priority: Medium

 **Status Report**

Action Statuses

BS in Mechanical Engineering Technology

Program Educational Objective 1: Solve technical problems

Apply the latest technology and engineering tools to solve technical problems in the practice of mechanical engineering technology and related interdisciplinary fields.

SLO c: Conduct, analyze and interpret experiments

an ability to conduct, analyze and interpret experiments, and apply experimental results to improve processes.

▼ **Action:** Continue to monitor LO:c

Action Details: Date: Nov. 13th, 2014

Subject: MET faculty meeting

Location: AETM Dept. Office

Present Faculties: Affan Badar, Todd Alberts, and Mehran Shahhosseini

Mehran presented the assessment data from MET students and faculties for the 2013-14 cycle. All the assessment results showed that the students and faculties achieved the target except one learning outcome, LO:c. These LO scores were 49%, 53%, and 58%; whereas the average needed score on the survey is 60%.

In the previous cycles, the target was met for this outcome assessment. Faculty discussed that this cycle assessment might be just one of a kind. It is better to wait for the next assessment cycle before we decide to recommend any action.

Implementation Plan (timeline):

Key/Responsible Personnel:

Measures:

Resource Allocations:

Priority: Medium

Status for Continue to monitor LO:c

No Status Added

Status Summary

No text specified

Summary of Next Steps

No text specified



2014-2015 Assessment Cycle

Assessment Plan

Outcomes and Measures

BS in Mechanical Engineering Technology

Program Educational Objective 1: Solve technical problems

Apply the latest technology and engineering tools to solve technical problems in the practice of mechanical engineering technology and related interdisciplinary fields.

SLO d: Apply creativity in the design of systems

an ability to apply creativity in the design of systems, components, or processes appropriate to the MET program educational objective.

▼ **Measure:** Faculty survey
Indirect - Survey

Details/Description: Rubric on training program

Target:

Implementation Plan (timeline): Spring 2015 and every three years thereafter

Responsible Individual(s): MET program coordinator

▼ **Measure:** Sample of student work from MET 409 and 403.
Direct - Student Artifact

Details/Description: Rubric on training program

Target:

Implementation Plan (timeline): Spring 2015 and every three years thereafter

Responsible Individual(s): MET program coordinator

PO 5: Implement design and produce parts.

Implement design and produce parts.

▼ **Measure:** Sample student work from MET 409 and MFG 370.
Direct - Student Artifact

Details/Description: Rubric on training program

Target:

Implementation Plan (timeline): Spring 2015 and every three years thereafter

Responsible Individual(s): MET program coordinator

▼ **Measure:** Student survey
Indirect - Survey

Details/Description: Rubric on training program

Target:

Implementation Plan (timeline): Spring 2015 and every three years thereafter

Responsible Individual(s): MET program coordinator

PO 6: Estimate cost and manage engineering projects.

Estimate cost and manage engineering projects.

▼ **Measure:** Sample student work from MET 404 and 405.
Direct - Student Artifact

Details/Description: Rubric on training program

Target:

Implementation Plan (timeline): Fall 2014/Spring 2015 and every three years thereafter

Responsible Individual(s): MET program coordinator

▼ **Measure:** Student survey
Indirect - Survey

Details/Description: Rubric on training program

Target:

Implementation Plan (timeline): Fall 2014/Spring 2015 and every three years thereafter

Responsible Individual(s): MET program coordinator

PO 7: Analyze/plan system's control and integration.

Recognize the need and analyze/plan the requirement for system's control and integration.

▼ **Measure:** Faculty survey
Indirect - Survey

Details/Description: Rubric on training program

Target:

Implementation Plan (timeline): Fall 2014 and every three years thereafter

Responsible Individual(s): MET program coordinator

▼ **Measure:** Sample student work from ECT 281
Direct - Student Artifact

Details/Description: Rubric on training program

Target:

Implementation Plan (timeline): Fall 2014 and every three years thereafter

Responsible Individual(s): MET program coordinator

▼ **Measure:** Student survey
Indirect - Survey

Details/Description: Rubric on training program

Target:

Implementation Plan (timeline): Fall 2014 and every three years thereafter

Responsible Individual(s): MET program coordinator

PO 8: Provide an integrated educational experience

Provide an integrated educational experience that develops the ability of students to apply pertinent knowledge to solving problems in MET specialty.

▼ **Measure:** Faculty survey,
Indirect - Survey

Details/Description: Rubric on training program

Target:

Implementation Plan (timeline): Spring 2015 and every three years thereafter

Responsible Individual(s): MET program coordinator

▼ **Measure:** Sample of student work from MET 409
Direct - Student Artifact

Details/Description: Rubric on training program

Target:

Implementation Plan (timeline): Spring 2015 and every three years thereafter

Responsible Individual(s): MET program coordinator

Program Educational Objective 5: Perform ethically and professionally in business, industry, and society.

SLO i: understand professional, ethical, social responsibility

an ability to understand professional, ethical and social responsibilities.

▼ **Measure:** Faculty survey
Indirect - Survey

Details/Description: Rubric on training program

Target:

Implementation Plan (timeline): Fall 2014 and every 3 years thereafter

Responsible Individual(s): MET program coordinator

▼ **Measure:** Student survey
Indirect - Survey

Details/Description: Rubric on training program

Target:

Implementation Plan (timeline): Fall 2014 and every 3 years thereafter

Responsible Individual(s): MET program coordinator

Program Educational Objective 7: Understand global issues and the impact of technology and engineering solutions

Understand global issues and the impact of technology and engineering solutions on the society and environment.

SLO j: A respect for diversity

a respect for diversity and a knowledge of contemporary professional, societal and global issues.

▼ **Measure:** Report in MET 130- Team building and diversity
Direct - Student Artifact

Details/Description: A hand-out on Team building and diversity, and assigning students to write a report in MET 130
Rubric on training program

Target:

Implementation Plan (timeline): Fall 2014 and every three years thereafter

Responsible Individual(s): MET program coordinator

▼ **Measure:** Report in MET 130- Technology and social impacts
Direct - Student Artifact

Details/Description: A hand-out on Technology and social impacts, and assigning students to write a report in MET 130
Rubric on training program

Target:

Implementation Plan (timeline): Fall 2014 and every three years thereafter
Responsible Individual(s): MET program coordinator

▼ **Measure:** Student survey.
Indirect - Survey

Details/Description: Rubric on training program

Target:

Implementation Plan (timeline): Fall 2014 and every three years thereafter

Responsible Individual(s): MET program coordinator

Assessment Findings

Finding per Measure

BS in Mechanical Engineering Technology

Program Educational Objective 1: Solve technical problems

Apply the latest technology and engineering tools to solve technical problems in the practice of mechanical engineering technology and related interdisciplinary fields.

SLO d: Apply creativity in the design of systems

an ability to apply creativity in the design of systems, components, or processes appropriate to the MET program educational objective.

▼ **Measure:** Faculty survey
Indirect - Survey

Details/Description: Rubric on training program

Target:

Implementation Plan (timeline): Spring 2015 and every three years thereafter

Responsible Individual(s): MET program coordinator

Findings for Faculty survey

No Findings Added

▼ **Measure:** Sample of student work from MET 409 and 403.
Direct - Student Artifact

Details/Description: Rubric on training program

Target:

Implementation Plan (timeline): Spring 2015 and every three years thereafter

Responsible Individual(s): MET program coordinator

Findings for Sample of student work from MET 409 and 403.

No Findings Added

PO 5: Implement design and produce parts.

Implement design and

▼ **Measure:** Sample student work from MET 409 and MFG 370.
Direct - Student Artifact

produce parts.

Details/Description: Rubric on training program

Target:

Implementation Plan (timeline): Spring 2015 and every three years thereafter

Responsible Individual(s): MET program coordinator

Findings for Sample student work from MET 409 and MFG 370.

No Findings Added

▼ **Measure:** Student survey
Indirect - Survey

Details/Description: Rubric on training program

Target:

Implementation Plan (timeline): Spring 2015 and every three years thereafter

Responsible Individual(s): MET program coordinator

Findings for Student survey

No Findings Added

PO 6: Estimate cost and manage engineering projects.

Estimate cost and manage engineering projects.

▼ **Measure:** Sample student work from MET 404 and 405.
Direct - Student Artifact

Details/Description: Rubric on training program

Target:

Implementation Plan (timeline): Fall 2014/Spring 2015 and every three years thereafter

Responsible Individual(s): MET program coordinator

Findings for Sample student work from MET 404 and 405.

No Findings Added

▼ **Measure:** Student survey
Indirect - Survey

Details/Description: Rubric on training program

Target:

Implementation Plan (timeline): Fall 2014/Spring 2015 and every three years thereafter

Responsible Individual(s): MET program coordinator

Findings for Student survey

No Findings Added

PO 7: Analyze/plan system's control and integration.

▼ **Measure:** Faculty survey
Indirect - Survey

Recognize the need and analyze/plan the requirement for system's control and integration.

Details/Description: Rubric on training program

Target:

Implementation Plan (timeline): Fall 2014 and every three years thereafter

Responsible Individual(s): MET program coordinator

Findings for Faculty survey

No Findings Added

▼ **Measure:** Sample student work from ECT 281
Direct - Student Artifact

Details/Description: Rubric on training program

Target:

Implementation Plan (timeline): Fall 2014 and every three years thereafter

Responsible Individual(s): MET program coordinator

Findings for Sample student work from ECT 281

No Findings Added

▼ **Measure:** Student survey
Indirect - Survey

Details/Description: Rubric on training program

Target:

Implementation Plan (timeline): Fall 2014 and every three years thereafter

Responsible Individual(s): MET program coordinator

Findings for Student survey

No Findings Added

PO 8: Provide an integrated educational experience

Provide an integrated educational experience that develops the ability of students to apply pertinent knowledge to solving problems in MET specialty.

▼ **Measure:** Faculty survey,
Indirect - Survey

Details/Description: Rubric on training program

Target:

Implementation Plan (timeline): Spring 2015 and every three years thereafter

Responsible Individual(s): MET program coordinator

Findings for Faculty survey,

No Findings Added

▼ **Measure:** Sample of student work from MET 409
Direct - Student Artifact

Details/Description: Rubric on training program

Target:

Implementation Plan (timeline): Spring 2015 and every three years thereafter

Responsible Individual(s): MET program coordinator

Findings for Sample of student work from MET 409

No Findings Added

Program Educational Objective 5: Perform ethically and professionally in business, industry, and society.

SLO i: understand professional, ethical, social responsibility

an ability to understand professional, ethical and social responsibilities.

▼ **Measure:** Faculty survey
Indirect - Survey

Details/Description: Rubric on training program

Target:

Implementation Plan (timeline): Fall 2014 and every 3 years thereafter

Responsible Individual(s): MET program coordinator

Findings for Faculty survey

No Findings Added

▼ **Measure:** Student survey
Indirect - Survey

Details/Description: Rubric on training program

Target:

Implementation Plan (timeline): Fall 2014 and every 3 years thereafter

Responsible Individual(s): MET program coordinator

Findings for Student survey

No Findings Added

Program Educational Objective 7: Understand global issues and the impact of technology and engineering solutions

Understand global issues and the impact of technology and engineering solutions on the society and environment.

SLO j: A respect for diversity

a respect for diversity and a knowledge of contemporary professional, societal and global issues.

▼ **Measure:** Report in MET 130- Team building and diversity
Direct - Student Artifact

Details/Description: A hand-out on Team building and diversity, and assigning students to write a report in MET 130
Rubric on training program

Target:

Implementation Plan (timeline): Fall 2014 and every three years thereafter

Responsible Individual(s): MET program coordinator

Findings for Report in MET 130- Team building and diversity

No Findings Added

▼ **Measure:** Report in MET 130- Technology and social impacts
Direct - Student Artifact

Details/Description: A hand-out on Technology and social impacts, and assigning students to write a report in MET 130
Rubric on training program

Target:

Implementation Plan (timeline): Fall 2014 and every three years thereafter

Responsible Individual(s): MET program coordinator

Findings for Report in MET 130- Technology and social impacts

No Findings Added

▼ **Measure:** Student survey.
Indirect - Survey

Details/Description: Rubric on training program

Target:

Implementation Plan (timeline): Fall 2014 and every three years thereafter

Responsible Individual(s): MET program coordinator

Findings for Student survey.

No Findings Added

Overall Recommendations

No text specified

Overall Reflection

No text specified

 **Action Plan**

 **Status Report**

2015-2016 Assessment Cycle

 **Assessment Plan**

 **Assessment Findings**

 **Action Plan**

 **Status Report**

2016-2017 Assessment Cycle

 **Assessment Plan**

 **Assessment Findings**

2017-2018 Assessment Cycle

 **Assessment Plan**

 **Assessment Findings**

2018-2019 Assessment Cycle

 **Assessment Plan**

 **Assessment Findings**

2019-2020 Assessment Cycle

 **Assessment Plan**

 **Assessment Findings**

Appendix

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- A. **BS in Mechanical Engineering Technology** (Curriculum Map)
 - B. **Mechanical Engineering Technology Program** (Adobe Acrobat Document)
 - C. **MET Student Survey.pdf** (Adobe Acrobat Document)
 - D. **MET Assessment Finding and Action Plan_F12-Sp13.pdf** (Adobe Acrobat Document)
 - E. **MET Course outcome survey Fall 2012.pdf** (Adobe Acrobat Document)
 - F. **MET Assessment_Student Work Rubrics_F13-Sp14.pdf** (Adobe Acrobat Document)
 - G. **MET Assessment_Student Work Rubrics_F13-Sp14.pdf** (Adobe Acrobat Document)
 - H. **MET Assessment_Student Work Rubrics_F13-Sp14.pdf** (Adobe Acrobat Document)
 - I. **MET Assessment_Student Work Rubrics_F13-Sp14.pdf** (Adobe Acrobat Document)
 - J. **MET Assessment_Student Work Rubrics_F13-Sp14.pdf** (Adobe Acrobat Document)
 - K. **MET Assessment_Student Work Rubrics_F13-Sp14.pdf** (Adobe Acrobat Document)
 - L. **MET Assessment Plan_F13-Sp14.pdf** (Adobe Acrobat Document)
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BS in Mechanical Engineering Technology Program

Mission

The mission of an undergraduate BS program in Mechanical Engineering Technology (MET) is to prepare individuals by providing a comprehensive knowledge and hands-on skills in a state-of-the-art mechanical engineering technology education. The MET program perpetuates Indiana State University's mission to educate students to become productive citizens and enhance the quality of life of the citizens of Indiana by preparing technical professionals for business and industry through a balanced curriculum.

Educational Objectives

The undergraduate program in Mechanical Engineering Technology will prepare graduates with knowledge, problem solving ability, and hands-on skills to enter careers in the design, installation, manufacturing, testing, evaluation, technical sales, maintenance, or management of mechanical and related systems and processes. The graduates can:

1. Apply the latest technology and engineering tools to solve technical problems in the practice of mechanical engineering technology and related interdisciplinary fields.
2. Remain technically current and adapt to rapidly changing technologies through self improvement with continuous learning or post-graduate education.
3. Demonstrate independent thinking, self-management, and functioning effectively in team-oriented and open-ended activities in an industrial environment.
4. Communicate effectively in oral, written, and graphical forms.
5. Perform ethically and professionally in business, industry, and society.
6. Develop leadership skills and responsibility in their chosen career field.
7. Understand global issues and the impact of technology and engineering solutions on the society and environment.

Student Learning Outcomes

This Mechanical Engineering Technology discipline encompasses the areas (and principles) of materials, applied mechanics, computer-aided drafting/design, manufacturing, experimental techniques/procedures, analysis of engineering data, machine/mechanical design/analysis, and automation/control systems, among others. The Mechanical Engineering Technology (MET) students by the time of graduation will have:

- a. an appropriate mastery of the knowledge, techniques, skills, and modern tools of the MET discipline (all the courses)
- b. an ability to apply current knowledge and adapt to emerging applications of mathematics, science, engineering, and technology (MATH 115 or MET 215), MATH 123, 301, CHEM 100, PHYS 105, MET 302, 304, 306, 406)
- c. an ability to conduct, analyze and interpret experiments, and apply experimental results to improve processes (MFG 370, 371/225, MET 403, MET 406, MET 413)
- d. an ability to apply creativity in the design of systems, components, or processes appropriate to the MET program educational objectives (MET 103, 203, 403, 302, 306, 406, 408)
- e. an ability to function effectively on teams (MET 130, 302, 405, 406, 413)

- f. an ability to identify, analyze and solve technical problems (MET 302, 306, 404, 405, 406, 408)
- g. an ability to communicate effectively (COMM 101, ENG 305T, MET 130, 103, 203, 403, 405, 413, 430)
- h. a recognition of the need for, and an ability to engage in lifelong learning (MET 130, 430, TGMT 421)
- i. an ability to understand professional, ethical and social responsibilities (MET 130, 404, 430, other Gen Ed, professional society)
- j. a respect for diversity and a knowledge of contemporary professional, societal and global issues (MET 130, TMGT 335, 421, Gen Ed: USD, IC)
- k. a commitment to quality, timeliness, and continuous improvement (All the courses)

Specifically, the students will be able to:

1. Identify mechanical systems that satisfy the given engineering requirements. (MET 306/404/406)
2. Describe the necessary assumptions in designing mechanical systems. (All the courses)
3. Apply proper engineering principles and theories to solve close-ended analysis and open-ended design problems. (MET 215/302/304/306/406)
4. Develop, simulate, and analyze mechanical components/systems using computer-aided design and analysis tools. (MET 103/203/403)
5. Select engineering materials for specific applications. (MFG 371)
6. Design mechanical parts and systems. (MET 406/408)
7. Identify and inspect tolerances in mechanical parts and assemblies. (MET 103/413)
8. Communicate through engineering drawings, written reports, or oral presentations. (MET 103/130/203/430 and other courses)
9. Manage design work/processes. (MET 404)
10. Implement design and produce parts. (MET 351/409/493 and MFG 370/371)
11. Estimate cost and manage engineering projects. (MET 404/405/409)
12. Evaluate the performance of mechanical systems. (MET 409)
13. Explain the potential impact of mechanical systems on environment and society, including safety. (MET 404/409)
14. Recognize the need and analyze/plan the requirement for system's control and integration. (ECT 280)

Assessment

The faculty of the MET program has adopted the following processes/evidences to assess the achievements of the program learning outcomes and education objectives listed above including computer usage, drawings, and written and oral communications. Single evidence may not be enough to assess all the outcomes. Therefore several evidences have been identified.

Direct Evidence:

1. Co-op/Internship Evaluation by Supervisor/faculty (N.A.: can be kept in file from MET 351): Which of the outcomes were assessed and how did the students do?
2. Senior Project (can be kept in file from MET 409)
3. Course Project (can be kept in file from MET 203, 302, 304, 306, 403, 404, 405, 406, 408, 413)

4. HW/Quiz/Exam (can be kept in file from MET 103, 203, 302, 304, 306, 403, 404, 405, 406, 408, 413)
5. Lab reports (can be kept from MFG 370/371, ECT 280)
6. Student Portfolio (MET 430)
7. MET program faculty assessment on students' attainment of the learning outcomes based on the Exit Interview (not available: can be done)
8. Society for Manufacturing Engineers (SME) Certification Exam (don't have record)

Indirect Evidence:

1. Course outlines (syllabi) and textbooks
2. Graduation Rate
3. Placement Rate
4. Student Evaluation on the program learning outcomes assessment (Not available: can be done in MET 430)
5. Alumni Survey
6. Employer Survey
7. Rate of Students going into graduate programs

Evaluation/Continuous Improvement

Every semester program faculty members meet to interpret the data and evidences collected from the assessment practices. This helps to find the extent to which program outcomes and educational objectives are being achieved and to take decisions and actions to continuously improve the program through a documented plan.

Curriculum

Major Required Courses: 48 credit hours

- MET 103 (3) Intro to Technical Graphics
- MET 130 (2) Intro to Engr. & Tech.
- MET 203 (3) Intro to Solid Modeling
- MET 302 (3) Applied Statics
- MET 306 (3) Applied Mechanisms
- MET 403 (3) Advanced CAD Concepts
- MET 404 (3) Engr. Design & Mgmt.
- MET 405 (3) Econ. Analy. For Engr. & Tech
- MET 406 (3) Strength of Materials
- MET 408 (3) Elements of Machine Design
- MET 413 (3) Applications & Gaging of GD&T
- MET 430 (1) Senior Seminar
- CS 151 (3) Intro to Computer Science
- ECT 160 (3) Fundamentals of Electronics
- *ECT 280 (3) Intro to Automation
- MFG 370 (3) Fund. of Machine Tool Processes
- *MFG 371 (3) Manufact. Processes & Materials

Technical Electives: 6 cr. hours from the following:

- MET 304 (3) Engr. Analysis (Dynamics)
- MET 329 (3) Fluid Power Technology

*MET 337 (3) Thermo Systems
MET 351 (3) Industrial Co-op
MET 407 (3) Tools & Die Design
MET 409 (3) Senior Project
Other courses approved by the MET advisor

Management Electives: 6 cr. hours from the following:

TMGT 471 (3) Production Plan & Control I
TMGT 473 (3) Quality control of Ind. Products I
TMGT 478 (3) Industrial Organ. & Functions
MGT 301 (3) Survey of Management

Science and Math Required Courses: 24 cr. hours

MATH 115 (3)
MATH 123 (3)
MET 215 (3)
MATH 301 (3)
SMS: F 4 Chem. 100 (3) & 100L (1)
SMS: F or E 4 Phys. 105 (3) & 105L (1)
4 * Phys. 106 (3) & 106L (1)

Other General Education: 41 - 44 cr. hours

COMM 101 (3) Intro to Speech
ENG 101/5 (6) Freshman Writing OR
ENG 107 (3) Rhetoric & Writing
ENG 305T (3) Technical Writing
PE 101 (2) Fitness for Life
Foreign Language (6)
SBS: F 3
SBS: F or E 3
LAPS: LL 3
LAPS: LE 3
HS 3
MCS: USD 3
MSC: IC 3
GECAP 3

* or a similar course approved by the MET advisor

Total: Minimum 125 semester hours required for graduation.

Transfer credits will be accepted based on a course-by-course evaluation, or an agreement between ISU and a partner institution.