Institutional Effectiveness Achievement Report


Unit Head: Walter Boles
Reports to: College of Basic & Applied Sciences

Mission:
MTSU's mission statement for the construction management program is to provide a broad basic understanding of the construction industry in the areas of commercial, land development/residential building and electrical construction management with the ultimate goal of being able to provide leadership with confidence within the construction industry. Courses are designed to prepare students for middle management leadership roles with a focus on administration, materials, and procedures used in construction. Professional ethics are taught to students while encouraging them to practice maintaining high moral standards and integrity in their daily lives.

Use of Prior Results:
The following changes were made after analysis of 2013-2014 assessment process for each learning outcome in the Land Development / Residential Building (LDRB) program. The documents are attached under the CURRENT MEASURES AND ANALYSIS OF RESULTS TAB. Measure 1: While the revised 2013-2014 rubric clarified how the items that are scored correlate with the individual learning outcomes, the new 2014-2015 rubric has changes made at the Capstone judges request that are designed to make the scoring process easier for the judges. The rubric is called "LDRB Capstone CMT 4170 Score Sheet 2014-2015". The spreadsheet for scores designed for 2013-2014 was not changed for the 2014-2015 year. The criteria for success was also not changed and remains 3.9 on the Likert scale (1 lowest, 5 highest). Ongoing methods to improve mastery of learning outcomes are being continued. Trial runs of the students Capstone presentations to their class two weeks prior to the actual presentation industry have been continued. This seems to help improve the presentations and will continue in order to improve the mastery of the learning outcomes. One on one meetings with individual instructors (especially the Capstone instructor) have been continued as this too seems to improve the presentations and will continue to improve the mastery of the ten learning outcomes. Measure 2: The measure described below, which was started in fall 2013, was left in place as is because it is proving to be a valuable measure to determine program effectiveness. (A new measure was added beginning fall 2013 which addresses the industry leaders response to a request to rank the students readiness for employment in the Land Development / Residential Building industry using the Likert scale (5 is most ready and 1 is least ready). Industries assessment of their readiness to hire should represent the students level of mastery of the ten learning outcomes of the program.) Measure 3: The measure below is continuing to be utilized as it provides the students assessment of mastery of the individual learning outcomes. (A new survey was developed for the graduating seniors. It separates the questions about the evaluation of their mastery of the ten learning outcomes from other general questions about the concentration. This survey is called, CMT LDRB Senior Learning Outcome Survey. The general questions about the concentration appear in a new document called, CMT LDRB Senior Questionnaire.) The title of the spreadsheet was designed for compiling the students evaluations of their mastery of the individual learning outcomes has been changed to: LDRB Senior Learning Outcome Results 14-15. Ongoing methods to improve mastery of learning outcomes were continued, especially the instructors giving tangible examples of industries expectations of skills which help the students to better understand what industry desires from the program graduates.

Support Document(s):
- Supporting Document(s): Capstone CMT 4170 Scores 2014-2015.xlsx
- Supporting Document(s): LDRB Senior Learning Outcome Survey 2014-15.docx
- Supporting Document(s): LDRB Capstone CMT 4170 Score Sheet 2014-2015.xlsx

Future Actions:
- We plan to change our concentration/option.
- We intend to make two changes to the Land Development / Residential Building Construction Management concentration/option. We plan to change our outcomes. The three concentrations/options were developed at...
several areas including: marketing analysis, infrastructure, house plans, sales and marketing plans, scheduling, business plan and a question and answer session. The rubric evaluates the Capstone project as a whole and associates skills and characteristics displayed by the students with the learning outcomes of the program. This measure was not met as the average score was 3.0 and the criteria for success was 3.9. The Capstone scoring rubric and the score sheet are attached (LDRB Capstone CMT 4170 Score Sheet 2014-2015 and Capstone CMT 4170 Scores 2014-2015). Measure 1 Strengths: The students did not meet the criteria for success for this learning outcome. This measure is a broad based assessment tool and used for all learning outcomes for several reasons: 1) The Capstone course is a culmination of all of the LDRB courses. 2) The Capstone presentation is presented to industry leaders as well as the MTSU professors. 3) There is a Question and Answer period at the end of the presentation where the judges have an opportunity to ask the student any question they may have about the project and the student must answer the question on the spot. 4) The scoring rubric has recently been redesigned to provide more clarity concerning the learning outcomes relationships to the skills and characteristics displayed by the students during their presentations. 5) The students are given the scoring rubric early in the semester in which they complete their Capstone presentation so they are aware of what the judges are looking for in their presentations and the way the learning outcomes are related to these skills and characteristics. 6) The Capstone presentation is different times and have two different directors. This has led to a lack of cohesiveness within the Construction Management major. A concentrated effort is being made to correct this issue. One of the first steps is to have common outcomes. We plan to make a curriculum change by creating a new class, Construction Fundamentals, CMT 1100. This class will be added to the curriculum beginning Fall 2015. We plan for it to replace Introduction to Operations Management, ET 3910 and Professional Development Seminar, ET 4710. Construction Fundamentals will be an introduction to the major systems encountered when managing construction. This class will include those operations of the residential and commercial construction industry; their similarities, as well as how they differ in scope and daily practice.

Future Actions: Describe Assessment Changes (measures such as rubrics,
extremely useful in building individual skills and confidence for future formal presentations. Measure 1 Weakness: The students did not meet the criteria for success for this learning outcome. The students’ failure to score at least a 3.9 on the Likert scale (1 lowest - 5 highest) indicates several areas of weakness. 1) The knowledge gained in the technical and administrative construction courses is lacking either due to the teachers’ presentation or the students’ study habits; both areas need improvement. Often projects completed in previous classes are not completed with the quality required for the Capstone manual/presentation. Both students and instructors need to improve in this area. 2) The students are not spending enough time examining previous Capstone manuals and presentations to know exactly what is expected in an excellent Capstone manual and presentation. 3) The students are not taking the initiative to schedule enough meetings with the Capstone course instructor to explore improvements that could be made to the manual and/or presentation before the course ends. 4) The students are not spending enough time practicing before the actual presentation.

Future Actions: Describe any additional resources needed (Leave blank if no additional resources are needed): We do not plan to make any assessment changes at this time.

Measure 2: Measure 2 Assessment tool: Industry score for this statement, Please rank the candidate's readiness for employment in the Land Dev. / Residential Building Industry. Use 5 as most ready and 1 is the least ready. This statement is included in the LDRB Capstone CMT 4170 Score Sheet 2014-2015. Measure 2 Criteria for Success: The average score for this statement (Please rank the candidate's readiness for employment in the Land Dev. / Residential Building Industry) should be a minimum of

Person(s) Responsible: Dr. David Hatfield, Mr. Duane Vanhook, Dr. Al Carter, Dr. Kathy Mathis

Completion Date: 08/24/2015

Analysis of Results for Measure 2: (include strengths & weaknesses): Measure 2 Results: The Land Development / Residential Building (LDRB) Capstone presentation to industry is the result of the culmination project for the entire LDRB program. Industry leaders and MTSU professors act as judges and score the presentations based on the scoring rubric. The rubric includes this statement, (Please rank the candidate's readiness for exams, diagnostic instruments, etc.):
3.0 using the Likert scale (1 lowest-5 highest score).

This measure was met as the average score was 3.0 and the criteria for success was 3.0. The Capstone scoring rubric and the score sheet are attached (LDRB Capstone CMT 4170 Score Sheet 2014-2015 and Capstone CMT 4170 Scores 2014-2015).

Measure 2

Strengths: As part of the scoring of the Capstone presentation, the judges are asked to rank the candidate’s readiness for employment in the Land Development / Residential Building Industry (using 5 as most ready and 1 as least ready). We find this measure to be very strong because the learning outcomes are based on what industry feels like the graduating student needs in order to show competency by the time of graduation. If industry ranks the student highly, we feel this is an indication of success in the mastery of the learning outcomes.

Weakness: Although the criterion for success was met, there are still areas of needed improvement. Industry leaders and MTSU professors score the Capstone manual and presentation. These scores indicate the level of competency in all of the learning outcomes of the program. When the students’ scores indicate they are lacking competency in the learning outcomes, the readiness for employment scores are also low. The areas of weakness indicated include: 1) The knowledge gained in the technical and administrative construction courses is lacking either due to the teachers’ presentation or the students’ study habits; both areas need improvement. Often projects completed in previous classes are
Measure 3: Analysis of Results for Measure 3: (include strengths & weaknesses)

Measure 3 Assessment tool: Results from the CMT LDRB Senior Learning Outcome Survey given to graduating seniors.

Measure 3 Criteria for Success: Students will answer yes at least 70% of the time to this question, As a graduating construction student do you feel that you have the general knowledge to be able to develop, produce, and present a proposal for a subdivision (concept through completion) to a board of construction industry professionals?

Person(s) Responsible: Dr. David Hatfield, Mr. Duane Vanhook, Dr. Al Carter, Dr. Kathy Mathis

Completion Date: 08/24/2015

Analysis of Results for Measure 3: Measure 3 Results: The CMT LDRB Senior Learning Outcome Survey is given to graduating seniors along with the CMT LDRB Senior Questionnaire. The CMT LDRB Senior Learning Outcome Survey asks the students for their opinion of their success in the mastery of the ten learning outcomes of the LDRB program. The results from the CMT LDRB Senior Learning Outcome Survey showed that 100% were able to answer yes to the question on the survey relating to this learning outcome and the criteria for success was 70%. This outcome was met. The CMT LDRB Senior Learning Outcome Survey and results are attached (CMT LDRB Senior Learning Outcome Survey 2014-15, Senior Learning Outcome Results 2014-15, and Learning Outcome Average Scores). Measure 3 Strengths: The students met the criteria for success for this learning outcome with 100% of the students responding yes when asked if they felt that they were able to develop,
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<thead>
<tr>
<th>Student Learning Outcome:</th>
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<th>Person(s) Responsible:</th>
<th>Analysis of Results for Measure 1:</th>
<th>Supporting Document(s):</th>
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<tr>
<td>Land Development / Residential Building (LDRB)</td>
<td>Measure 1 Assessment tool: Scores from students Land Development / Residential Building (LDRB) Capstone presentation to industry.</td>
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<td>CMT LDRB Senior Learning Outcome Survey 14-15.docx</td>
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**Future Actions :** Describe Program Changes (adding a course, assignment, project, etc.): We intend to make two changes to the Land Development / Residential Building Construction Management concentration/option.

**Date:** 08/24/2015

**Completed by:** Kathy Mathis

**Al Carter, Dr. Duane Hatfield, Mr. Vanhook, Dr. Al Carter, Dr. Kathy Mathis**
development project. The land development will include a subdivision planned for a certain niche and the project includes several areas including: marketing analysis, infrastructure, house plans, sales and marketing plans, scheduling, business plan and a question and answer session. The rubric evaluates the Capstone project as a whole and associates skills and characteristics displayed by the students with the learning outcomes of the program. This measure was not met as the average score was 3.0 and the criteria for success was 3.9. The Capstone scoring rubric and the score sheet are attached (LDRB Capstone CMT 4170 Score Sheet 2014-2015 and Capstone CMT 4170 Scores 2014-2015). Measure 1 Strengths: The students did not meet the criteria for success for this learning outcome. This measure is a broad based assessment tool and used for all learning outcomes for several reasons: 1) The Capstone course is a culmination of all of the LDRB courses. 2) The Capstone presentation is presented to industry leaders as well as the MTSU professors. 3) There is a Question and Answer period at the end of the presentation where the judges have an opportunity to ask the student any question they may have about the project and the student must answer the question on the spot. 4) The scoring rubric has recently been redesigned to provide more clarity concerning the learning outcomes relationships to the skills and characteristics displayed by the students during their presentations. 5) The students are given the scoring rubric early in the semester in which they complete their Capstone presentation so they are aware of what the judges are looking for in their presentations and the way the

We plan to change our outcomes. The three concentrations/options were developed at different times and have two different directors. This has led to a lack of cohesiveness within the Construction Management major. A concentrated effort is being made to correct this issue. One of the first steps is to have common outcomes. We plan to make a curriculum change by creating a new class, Construction Fundamentals, CMT 1100. This class will be added to the curriculum beginning Fall 2015. We plan for it to replace Introduction to Operations Management, ET 3910 and Professional Development Seminar, ET 4710. Construction Fundamentals will be an introduction to the major systems encountered when managing construction. This class will include those operations of the residential and commercial construction industry; their similarities, as well as how they differ in scope and daily practice.

Future Actions
Learning outcomes are related to these skills and characteristics. 6) The Capstone presentation is extremely useful in building individual skills and confidence for future formal presentations. Measure 1: Weakness: The students did not meet the criteria for success for this learning outcome. The students’ failure to score at least a 3.9 on the Likert scale (1 lowest - 5 highest) indicates several areas of weakness.

1) The knowledge gained in the technical and administrative construction courses is lacking either due to the teachers’ presentation or the students’ study habits; both areas need improvement. Often projects completed in previous classes are not completed with the quality required for the Capstone manual/presentation. Both students and instructors need to improve in this area. 2) The students are not spending enough time examining previous Capstone manuals and presentations to know exactly what is expected in an excellent Capstone manual and presentation. 3) The students are not taking the initiative to schedule enough meetings with the Capstone course instructor to explore improvements that could be made to the manual and/or presentation before the course ends. 4) The students are not spending enough time practicing before the actual presentation.

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readiness for employment in the Land Dev. / Residential Building Industry.) should be a minimum of 3.0 using the Likert scale (1 lowest-5 highest score).

This measure was met as the average score was 3.0 and the criteria for success was 3.0. The Capstone scoring rubric and the score sheet are attached (LDRB Capstone CMT 4170 Score Sheet 2014-2015 and Capstone CMT 4170 Scores 2014-2015).

Measure 2

Strengthen: As part of the scoring of the Capstone presentation, the judges are asked to rank the candidate’s readiness for employment in the Land Development / Residential Building Industry (using 5 as most ready and 1 as least ready). We find this measure to be very strong because the learning outcomes are based on what industry feels like the graduating student needs in order to show competency by the time of graduation. If industry ranks the student highly, we feel this is an indication of success in the mastery of the learning outcomes.

Weakness: Although the criterion for success was met, there are still areas of needed improvement. Industry leaders and MTSU professors score the Capstone manual and presentation. These scores indicate the level of competency in all of the learning outcomes of the program. When the students’ scores indicate they are lacking competency in the learning outcomes, the readiness for employment scores are also low. The areas of weakness indicated include: 1) The knowledge gained in the technical and administrative construction courses is lacking either due to the teachers’ presentation or the students’ study habits; both areas need improvement. Often
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**Measure 3:**

**Measure 3 Assessment tool:** Results from the CMT LDRB Senior Learning Outcome Survey given to graduating seniors.

**Measure 3 Criteria for Success:** Students will answer yes at least 70% of the time to this question, As a graduating construction student do you feel that you have the general knowledge to be able to develop and plot a working set of residential architectural drawings; estimate and schedule a project applying information from those drawings?

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**Analysis of Results for Measure 3:** (include strengths & weaknesses)

Measure 3 Results: The CMT LDRB Senior Learning Outcome Survey is given to graduating seniors along with the CMT LDRB Senior Questionnaire. The CMT LDRB Senior Learning Outcome Survey asks the students for their opinion of their success in the mastery of the ten learning outcomes of the LDRB program. The results from the CMT LDRB Senior Learning Outcome Survey showed that 100% were able to answer yes to the question on the survey relating to this learning outcome and the criteria for success was 70%. This outcome was met. The CMT LDRB Senior Learning Outcome Survey and results are attached (CMT LDRB Senior Learning Outcome Survey 2014-15, Senior Learning Outcome Results 2014-15, and Learning Outcome Average Scores). Measure 3 Strengths: The students met the criteria for success for this learning outcome with 100% of the students responding yes when asked if they
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**Measure 1:** While the revised 2013-2014 rubric clarified how the items that are scored correlate with the individual learning outcomes, the new 2014-2015 rubric has changes made at the Capstone judges request that are designed to make the scoring process easier for the judges. The rubric is called "LDRB Capstone CMT 4170 Score Sheet 2014-2015". The spreadsheet for scores designed for 2013-2014 was not changed for the 2014-2015 year. The criteria for success was also not changed and remains to 3.9 on the Likert scale (1 lowest - 5 highest). Ongoing methods to improve mastery of learning outcomes are being continued. Trial runs of the student's Capstone presentations to their class two weeks prior to the actual presentation industry have been continued. This seems to help improve the presentations and will continue in order to improve the mastery of the learning outcomes. One on one meetings with individual instructors (especially the Capstone instructor) have been continued as this too seems to improve the presentations and will continue to improve the mastery of the ten learning outcomes. Measure 2: The measure described below, which was started in fall 2013, was left in place as is because it is proving to be a valuable measure to determine program effectiveness. (A new measure was added beginning fall 2013 which addresses the industry leaders response to a request to rank the students readiness for employment in the Land Development / Residential Building industry using the Likert scale (5 is most ready and 1 is least ready). Industries assessment of their readiness to hire should represent the students level of mastery of the ten learning outcomes of the program.) Measure 3: The measure below is continuing to be utilized as it provides the students assessment of mastery of the learning outcomes. (A new survey was developed for the graduating seniors. It separates the questions about the evaluation of their mastery of the individual learning outcomes from other general questions about the concentration. This survey is called, CMT LDRB Senior Learning Outcome Survey. The general questions about the concentration appear in a new document called, CMT LDRB Senior Questionnaire.) The title of the spreadsheet was designed for compiling the students evaluations of their mastery of the individual learning outcomes has been changed to: LDRB Senior Learning Outcome Results 14-15. Ongoing methods to improve mastery of learning outcomes were continued, especially the instructors giving tangible examples of industries expectations of skills which help the students to better understand what industry desires from the program graduates.

**Student Learning Outcome:** Land Development / Residential Building students should be able to communicate effectively, clearly, and precisely while conducting construction business as an individual or as part of a team.

**Measure 1:** Measure 1 Assessment tool: Scores from students Land Development / Residential Building (LDRB) Capstone presentation to industry. Measure 1 Criteria for Success: The average score from the section of the score sheet relating to this learning outcome for Land Development / Residential Building Capstone Presentation should be a minimum of 3.90 using the Likert scale (1 lowest-5 highest score).

**Person(s) Responsible:** Dr. David Hatfield, Mr. Duane Vanhook, Dr. Al Carter, Dr. Kathy Mathis

**Completion Date:** 09/24/2015

**Analysis of Results for Measure 1:** (Include strengths & weaknesses): Measure 1 Results: The Land Development / Residential Building (LDRB) Capstone presentation to industry is the result of the culmination project for the entire LDRB program. Industry leaders and MTSU professors act as judges and score the presentations based on the scoring rubric. The industry leaders pose as potential investors for a land project, etc.). We intend to make two changes to the Land Development / Residential Building Construction Management concentration/option.

**Future Actions:** Describe Program Changes (adding a course, assignment, project, etc.): We intend to make two changes to the Land Development / Residential Building Construction Management concentration/option.

**Supporting Document(s):**
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We plan to change our outcomes. The three concentrations/options were developed at different times and have two different directors. This has led to a lack of cohesiveness within the Construction Management major. A concentrated effort is being made to correct this issue. One of the first steps is to have common outcomes. We plan to make a curriculum change by creating a new class. Construction Fundamentals, CMT 1100. This class will be added to the curriculum beginning Fall 2015. We plan for it to replace Introduction to Operations Management, ET 3910 and Professional Development Seminar, ET 4710. Construction Fundamentals will be an introduction to the major systems encountered when managing construction. This class will include those operations of the residential and commercial construction industry; their similarities, as well as how they differ in scope and daily practice.

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The average score for this statement (Please rank the candidate's readiness for employment in the Land Dev. / Residential Building Industry.) should be a minimum of 3.0 using the Likert scale (1 lowest-5 highest score).

Completion Date: 08/24/2015

score the presentations based on the scoring rubric. The rubric includes this statement, (Please rank the candidate's readiness for employment in the Land Dev. / Residential Building Industry. Use 5 as most ready and 1 as least ready.) This measure was met as the average score was 3.0 and the criteria for success was 3.0. The Capstone scoring rubric and the score sheet are attached (LDRB Capstone CMT 4170 Score Sheet 2014-2015 and Capstone CMT 4170 Scores 2014-2015). Measure 2

Strengths: As part of the scoring of the Capstone presentation, the judges are asked to rank the candidate's readiness for employment in the Land Development / Residential Building Industry (using 5 as most ready and 1 as least ready). We find this measure to be very strong because the learning outcomes are based on what industry feels like the graduating student needs in order to show competency by the time of graduation. If industry ranks the student highly, we feel this is an indication of success in the mastery of the learning outcomes. Measure 2

Weakness: Although the criterion for success was met, there are still areas of needed improvement. Industry leaders and MTSU professors score the Capstone manual and presentation. These scores indicate the level of competency in all of the learning outcomes of the program. When the students' scores indicate they are lacking competency in the learning outcomes, the readiness for employment scores are also low. The areas of weakness indicated include: 1) The knowledge gained in the technical and administrative construction courses is lacking either due to the teachers'
Measure 3:
Measure 3 Assessment tool: Results from the CMT LDRB Senior Learning Outcome Survey given to graduating seniors.
Measure 3 Criteria for Success: Students will answer yes at least 70% of the time to this question. As a graduating construction student do you feel that you have the general knowledge to be able to communicate effectively, clearly, and precisely while conducting construction business as an individual or as part of a team?

Person(s) Responsible:
Dr. David Hatfield, Mr. Duane Vanhook, Dr. Al Carter, Dr. Kathy Mathis

Completion Date: 08/24/2015

Analysis of Results for Measure 3: (include strengths & weaknesses)
Measure 3 Results: The CMT LDRB Senior Learning Outcome Survey is given to graduating seniors along with the CMT LDRB Senior Questionnaire. The CMT LDRB Senior Learning Outcome Survey asks the students for their opinion of their success in the mastery of the ten learning outcomes of the LDRB program. The results from the CMT LDRB Senior Learning Outcome Survey showed that 100% were able to answer yes to the question on the survey relating to this learning outcome and the criteria for success was 70%. This outcome was met. The CMT LDRB Senior Learning Outcome Survey and results are attached (CMT LDRB Senior Learning Outcome Survey 2014-15, Senior Learning Outcome Results 2014-15, and Learning Outcome Average Scores). Measure 3 Strengths: The students met the presentation or the students' study habits; both areas need improvement. Often projects completed in previous classes are not completed with the quality required for the Capstone manual/presentation. Both students and instructors need to improve in this area. 2) The students are not spending enough time examining previous Capstone manuals and presentations to know exactly what is expected in an excellent Capstone manual and presentation. 3) The students are not taking the initiative to schedule enough meetings with the Capstone course instructor to explore improvements that could be made to the manual and/or presentation before the course ends. 4) The students are not spending enough time practicing before the actual presentation.
Student Learning Outcome:
Land Development / Residential Building students should be able to evaluate and apply knowledge gained in basic construction methods; materials; codes; specifications; and plan reading to residential construction projects

Measure 1: Measure 1 Assessment tool: Scores from students Land Development / Residential Building (LDRB) Capstone presentation to industry. Measure 1 Criteria for Success: The average score from the section of the score sheet relating to this learning outcome for Land Development / Residential Building Capstone Presentation

Person(s) Responsible: Dr. David Hatfield, Mr. Duane Vanhook, Dr. Al Carter, Dr. Kathy Mathis

Analysis of Results for Measure 1. (Include strengths & weaknesses): Measure 1 Results: The Land Development / Residential Building (LDRB) Capstone presentation to industry is the result of the culmination project for the entire LDRB program. Industry leaders and MTSU professors act as judges and

Supporting Document(s): Capstone CMT 4170 Scores 2014-2015.xlsx
CMT LDRB Senior Learning Outcome Survey 14-15 results.docx
LDRB Capstone CMT 4170 Score Sheet 2014-2015.xlsx
CMT LDRB Senior Learning

Future Actions: Describe Program Changes (adding a course, assignment, project, etc.): We intend to make two changes to the Land Development / Residential Building
Completion Date: 08/24/2015

score the presentations based on the scoring rubric. The industry leaders pose as potential investors for a land development project. The land development will include a subdivision planned for a certain niche and the project includes several areas including: marketing analysis, infrastructure, house plans, sales and marketing plans, scheduling, business plan and a question and answer session. The rubric evaluates the Capstone project as a whole and associates skills and characteristics displayed by the students with the learning outcomes of the program. This measure was not met as the average score was 3.0 and the criteria for success was 3.9. The Capstone scoring rubric and the score sheet are attached (LDRB Capstone CMT 4170 Score Sheet 2014-2015 and Capstone CMT 4170 Scores 2014-2015).

Measure 1 Strengths: The students did not meet the criteria for success for this learning outcome. This measure is a broad based assessment tool and used for all learning outcomes for several reasons: 1) The Capstone course is a culmination of all of the LDRB courses. 2) The Capstone presentation is presented to industry leaders as well as the MTSU professors. 3) There is a Question and Answer period at the end of the presentation where the judges have an opportunity to ask the student any question they may have about the project and the student must answer the question on the spot. 4) The scoring rubric has recently been redesigned to provide more clarity concerning the learning outcomes relationships to the skills and characteristics displayed by the students during their presentations. 5) The students are given the scoring rubric early in the semester.

Outcome Survey 2014-15.docx

Construction Management concentration/option. We plan to change our outcomes. The three concentrations/options were developed at different times and have two different directors. This has led to a lack of cohesiveness within the Construction Management major. A concentrated effort is being made to correct this issue. One of the first steps is to have common outcomes. We plan to make a curriculum change by creating a new class. Construction Fundamentals, CMT 1100. This class will be added to the curriculum beginning Fall 2015. We plan for it to replace Introduction to Operations Management, ET 3910 and Professional Development Seminar, ET 4710. Construction Fundamentals will be an introduction to the major systems encountered when managing construction. This class will include those operations of the residential and commercial construction industry; their similarities, as well as how they differ in scope and daily...
in which they complete their Capstone presentation so they are aware of what the judges are looking for in their presentations and the way the learning outcomes are related to these skills and characteristics. 6) The Capstone presentation is extremely useful in building individual skills and confidence for future formal presentations.

Measure 1 Weakness: The students did not meet the criteria for success for this learning outcome. The students’ failure to score at least a 3.9 on the Likert scale (1 lowest - 5 highest) indicates several areas of weakness.

1) The knowledge gained in the technical and administrative construction courses is lacking either due to the teachers’ presentation or the students’ study habits; both areas need improvement. Often projects completed in previous classes are not completed with the quality required for the Capstone manual/presentation. Both students and instructors need to improve in this area. 2) The students are not spending enough time examining previous Capstone manuals and presentations to know exactly what is expected in an excellent Capstone manual and presentation. 3) The students are not taking the initiative to schedule enough meetings with the Capstone course instructor to explore improvements that could be made to the manual and/or presentation before the course ends. 4) The students are not spending enough time practicing before the actual presentation.

Future Actions: Describe Assessment Changes (measures such as rubrics, exams, diagnostic instruments, etc.):

We do not plan to make any assessment changes at this time.

Future Actions: Describe any additional resources needed (Leave blank if no additional resources are needed.):

Measure 2:

Measure 2 Assessment tool: Industry score for this statement, Please rank the candidate's readiness for employment in the Land Dev. / Residential Building Industry. Use 5 as most ready and 1 is the least

Person(s) Responsible: Dr. David Hatfield, Mr. Duane Vanhook, Dr. Analysis of Results for Measure 2: (include strengths & weaknesses):

Measure 2 Results: The Land Development / Residential Building (LDRB) Capstone presentation to industry is the result of the
Measure 2 Criteria for Success: The average score for this statement (Please rank the candidate's readiness for employment in the Land Dev. / Residential Building Industry.) should be a minimum of 3.0 using the Likert scale (1 lowest-5 highest score).

This measure was met as the average score was 3.0 and the criteria for success was 3.0. The Capstone scoring rubric and the score sheet are attached (LDRB Capstone CMT 4170 Score Sheet 2014-2015 and Capstone CMT 4170 Scores 2014-2015).

**Measure 2 Strengths:** As part of the scoring of the Capstone presentation, the judges are asked to rank the candidate's readiness for employment in the Land Development / Residential Building Industry (using 5 as most ready and 1 as least ready). We find this measure to be very strong because the learning outcomes are based on what industry feels like the graduating student needs in order to show competency by the time of graduation. If industry ranks the student highly, we feel this is an indication of success in the mastery of the learning outcomes.

**Measure 2 Weakness:** Although the criterion for success was met, there are still areas of needed improvement. Industry leaders and MTSU professors score the Capstone manual and presentation. These scores indicate the level of competency in all of the learning outcomes of the program. When the students' scores indicate they are lacking competency in the learning outcomes, the readiness for employment scores are also low. The areas of weakness indicated include: 1) The knowledge gained in
the technical and administrative construction courses is lacking either due to the teachers’ presentation or the students’ study habits; both areas need improvement. Often projects completed in previous classes are not completed with the quality required for the Capstone manual/presentation. Both students and instructors need to improve in this area. 2) The students are not spending enough time examining previous Capstone manuals and presentations to know exactly what is expected in an excellent Capstone manual and presentation. 3) The students are not taking the initiative to schedule enough meetings with the Capstone course instructor to explore improvements that could be made to the manual and/or presentation before the course ends. 4) The students are not spending enough time practicing before the actual presentation.

<table>
<thead>
<tr>
<th>Measure 3: Analysis of Results for Measure 3: (include strengths &amp; weaknesses)</th>
<th>Person(s) Responsible: Dr. David Hatfield, Mr. Duane Vanhook, Dr. Al Carter, Dr. Kathy Mathis</th>
<th>Date: 08/24/2015</th>
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<tbody>
<tr>
<td>Measure 3 Assessment tool: Results from the CMT LDRB Senior Learning Outcome Survey given to graduating seniors. Measure 3 Criteria for Success: Students will answer yes at least 70% of the time to this question. As a graduating construction student do you feel that you have the general knowledge to be able to evaluate and apply knowledge gained in basic construction methods, materials, codes, specifications, and plan reading to residential construction projects?</td>
<td>Measure 3 Results: The CMT LDRB Senior Learning Outcome Survey is given to graduating seniors along with the CMT LDRB Senior Questionnaire. The CMT LDRB Senior Learning Outcome Survey asks the students for their opinion of their success in the mastery of the ten learning outcomes of the LDRB program. The results from the CMT LDRB Senior Learning Outcome Survey showed that 100% were able to answer yes to the question on the survey relating to this learning outcome and the criteria for success was 70%. This outcome was met. The CMT LDRB Senior Learning Outcome Survey and results are attached (CMT LDRB Senior Learning Outcome Survey 2014-15, Senior Learning Outcome Results)</td>
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</tbody>
</table>
Measure 1:
Measure 1 Assessment tool: Scores from students Land Development / Residential Building (LDRB) Capstone presentation to industry. Measure 1 Criteria for Success: The average score from the section of the course on "Land Development / Residential Building". The criterion for success was also not changed and remains at 3.9 on the Likert scale (1 lowest, 5 highest). Ongoing methods to improve mastery of learning outcomes are being continued. Trial runs of the students Capstone presentations to their class two weeks prior to the actual presentation industry have been continued. This seems to help improve the presentations and will continue in order to improve the mastery of the learning outcomes. One on one meetings with individual instructors (especially the Capstone instructor) have been continued as this too seems to improve the presentations and will continue to improve the mastery of the ten learning outcomes.

Measure 2:
The measure described below, which was started in fall 2013, was left in place as is because it is proving to be a valuable measure to determine program effectiveness. (A new measure was added beginning fall 2013 which addresses the industry leaders response to a request to rank the student’s readiness for employment in the Land Development / Residential Building industry using the Likert scale (5 is most ready and 1 is least ready). Industry assessment of their readiness to hire should represent the students level of mastery of the ten learning outcomes of the program.) Measure 3: The measure below is continuing to be utilized as it provides the students’ assessment of mastery of the learning outcomes. (A new survey was developed for the graduating seniors. It separates the questions about the evaluation of their mastery of the individual learning outcomes from other general questions about the concentration. This survey is called, CMT LDRB Senior Learning Outcome Survey. The general questions about the concentration appear in a new document called, CMT LDRB Senior Questionnaire.) The title of the spreadsheet was designed for compiling the students evaluations of their mastery of the individual learning outcomes has been changed to: LDRB Senior Learning Outcome Results 14-15. Ongoing methods to improve mastery of learning outcomes were continued, especially the instructors giving tangible examples of industry's expectations of skills which help the students to better understand what industry desires from the program graduates.

Use of Prior Results: The following changes were made after analysis of 2013-2014 assessment process for each learning outcome in the Land Development / Residential Building (LDRB) program. The documents are attached under the CURRENT MEASURES AND ANALYSIS OF RESULTS TAB. The documents are attached under the CURRENT MEASURES AND ANALYSIS OF RESULTS TAB. Measure 1: While the revised 2013-2014 rubric clarified how the items that are scored correlate with the individual learning outcomes, the new 2014-2015 rubric has changes made at the Capstone judges request that are designed to make the scoring process easier for the judges. The rubric is called “LDRB Capstone CMT 4170 Score Sheet 2014-2015” The spreadsheet for scores designed for 2013-2014 was not changed for the 2014-2015 year. The criteria for success was also not changed and remains at 3.9 on the Likert scale (1 lowest, 5 highest). Ongoing methods to improve mastery of learning outcomes are being continued. Trial runs of the students Capstone presentations to their class two weeks prior to the actual presentation industry have been continued. This seems to help improve the presentations and will continue in order to improve the mastery of the learning outcomes. One on one meetings with individual instructors (especially the Capstone instructor) have been continued as this too seems to improve the presentations and will continue to improve the mastery of the ten learning outcomes. Measure 2: The measure described below, which was started in fall 2013, was left in place as is because it is proving to be a valuable measure to determine program effectiveness. (A new measure was added beginning fall 2013 which addresses the industry leaders response to a request to rank the student’s readiness for employment in the Land Development / Residential Building industry using the Likert scale (5 is most ready and 1 is least ready). Industry assessment of their readiness to hire should represent the students level of mastery of the ten learning outcomes of the program.) Measure 3: The measure below is continuing to be utilized as it provides the students’ assessment of mastery of the learning outcomes. (A new survey was developed for the graduating seniors. It separates the questions about the evaluation of their mastery of the individual learning outcomes from other general questions about the concentration. This survey is called, CMT LDRB Senior Learning Outcome Survey. The general questions about the concentration appear in a new document called, CMT LDRB Senior Questionnaire.) The title of the spreadsheet was designed for compiling the students evaluations of their mastery of the individual learning outcomes has been changed to: LDRB Senior Learning Outcome Results 14-15. Ongoing methods to improve mastery of learning outcomes were continued, especially the instructors giving tangible examples of industry's expectations of skills which help the students to better understand what industry desires from the program graduates.

Student Learning Outcome:
Land Development / Residential Building students should be able to identify and solve problems using construction software estimating programs; CAD

Measure 1:
Measure 1 Assessment tool: Scores from students Land Development / Residential Building (LDRB) Capstone presentation to industry. Measure 1 Criteria for Success: The average score from the section of the course on "Land Development / Residential Building". The criterion for success was also not changed and remains at 3.9 on the Likert scale (1 lowest, 5 highest). Ongoing methods to improve mastery of learning outcomes are being continued. Trial runs of the students Capstone presentations to their class two weeks prior to the actual presentation industry have been continued. This seems to help improve the presentations and will continue in order to improve the mastery of the learning outcomes. One on one meetings with individual instructors (especially the Capstone instructor) have been continued as this too seems to improve the presentations and will continue to improve the mastery of the ten learning outcomes. Measure 2: The measure described below, which was started in fall 2013, was left in place as is because it is proving to be a valuable measure to determine program effectiveness. (A new measure was added beginning fall 2013 which addresses the industry leaders response to a request to rank the student’s readiness for employment in the Land Development / Residential Building industry using the Likert scale (5 is most ready and 1 is least ready). Industry assessment of their readiness to hire should represent the students level of mastery of the ten learning outcomes of the program.) Measure 3: The measure below is continuing to be utilized as it provides the students’ assessment of mastery of the learning outcomes. (A new survey was developed for the graduating seniors. It separates the questions about the evaluation of their mastery of the individual learning outcomes from other general questions about the concentration. This survey is called, CMT LDRB Senior Learning Outcome Survey. The general questions about the concentration appear in a new document called, CMT LDRB Senior Questionnaire.) The title of the spreadsheet was designed for compiling the students evaluations of their mastery of the individual learning outcomes has been changed to: LDRB Senior Learning Outcome Results 14-15. Ongoing methods to improve mastery of learning outcomes were continued, especially the instructors giving tangible examples of industry's expectations of skills which help the students to better understand what industry desires from the program graduates.
score sheet relating to this learning outcome for Land Development / Residential Building Capstone Presentation should be a minimum of 3.90 using the Likert scale (1 lowest-5 highest score).

Al Carter, Dr. Kathy Mathis  
Completion Date: 08/24/2015  

Culmination project for the entire LDRB program. Industry leaders and MTSU professors act as judges and score the presentations based on the scoring rubric. The industry leaders pose as potential investors for a land development project. The land development will include a subdivision planned for a certain niche and the project includes several areas including: marketing analysis, infrastructure, house plans, sales and marketing plans, scheduling, business plan and a question and answer session. The rubric evaluates the Capstone project as a whole and associates skills and characteristics displayed by the students with the learning outcomes of the program. This measure was not met as the average score was 3.0 and the criteria for success was 3.9. The Capstone scoring rubric and the score sheet are attached (LDRB Capstone CMT 4170 Score Sheet 2014-2015 and CMT 1100 Scores 2014-2015). Measure 1 Strengths: The students did not meet the criteria for success for this learning outcome. This measure is a broad based assessment tool and used for all learning outcomes for several reasons: 1) The Capstone course is a culmination of all of the LDRB courses. 2) The Capstone presentation is presented to industry leaders as well as the MTSU professors. 3) There is a Question and Answer period at the end of the presentation where the judges have an opportunity to ask the student any question they may have about the project and the student must answer the question on the spot. 4) The scoring rubric has recently been redesigned to provide more clarity concerning the learning outcomes relationships to the skills and characteristics displayed by the students.

Measure 2 Strengths: The three concentrations/options were developed at different times and have two different directors. This has led to a lack of cohesiveness within the Construction Management major. A concentrated effort is being made to correct this issue. One of the first steps is to have common outcomes. We plan to make a curriculum change by creating a new class, Construction Fundamentals, CMT 1100. This class will be added to the curriculum beginning Fall 2015. We plan for it to replace Introduction to Operations Management, ET 3910 and Professional Development Seminar, ET 4710. Construction Fundamentals will be an introduction to the major systems encountered when managing construction. This class will include those operations of the residential and commercial construction industry;
students during their presentations. 5) The students are given the scoring rubric early in the semester in which they complete their Capstone presentation so they are aware of what the judges are looking for in their presentations and the way the learning outcomes are related to these skills and characteristics. 6) The Capstone presentation is extremely useful in building individual skills and confidence for future formal presentations. Measure 1 Weakness: The students did not meet the criteria for success for this learning outcome. The students’ failure to score at least a 3.9 on the Likert scale (1 lowest - 5 highest) indicates several areas of weakness. 1) The knowledge gained in the technical and administrative construction courses is lacking either due to the teachers’ presentation or the students’ study habits; both areas need improvement. Often projects completed in previous classes are not completed with the quality required for the Capstone manual/presentation. Both students and instructors need to improve in this area. 2) The students are not spending enough time examining previous Capstone manuals and presentations to know exactly what is expected in an excellent Capstone manual and presentation. 3) The students are not taking the initiative to schedule enough meetings with the Capstone course instructor to explore improvements that could be made to the manual and/or presentation before the course ends. 4) The students are not spending enough time practicing before the actual presentation.

Future Actions
Describe Assessment Changes (measures such as rubrics, exams, diagnostic instruments, etc.): We have no plans for future assessment changes at this time.

Measure 2: Measure 2 Assessment tool: Industry score for this statement, Please rank the Person(s) Responsible: Dr. David Analysis of Results for Measure 2: (include strengths & weaknesses): Measure 2 Results: The Land
Measure 2 Criteria for Success:
The average score for this statement (Please rank the candidate's readiness for employment in the Land Dev. / Residential Building Industry. Use 5 as most ready and 1 is the least ready.) should be a minimum of 3.0 using the Likert scale (1 lowest - 5 highest score).

Measure 2 Strengths: As part of the scoring of the Capstone presentation, the judges are asked to rank the candidate's readiness for employment in the Land Development / Residential Building Industry (using 5 as most ready and 1 as least ready). We find this measure to be very strong because the learning outcomes are based on what industry feels like the graduating student needs in order to show competency by the time of graduation. If industry ranks the student highly, we feel this is an indication of success in the mastery of the learning outcomes.

Measure 2 Weakness: Although the criterion for success was met, there are still areas of needed improvement. Industry leaders and MTSU professors score the Capstone manual and presentation. These scores indicate the level of competency in all of the learning outcomes of the program. When the students' scores indicate they are lacking competency in the learning outcomes, the readiness for
The areas of weakness indicated include: 1) The knowledge gained in the technical and administrative construction courses is lacking either due to the teachers’ presentation or the students’ study habits; both areas need improvement. Often projects completed in previous classes are not completed with the quality required for the Capstone manual/presentation. Both students and instructors need to improve in this area. 2) The students are not spending enough time examining previous Capstone manuals and presentations to know exactly what is expected in an excellent Capstone manual and presentation. 3) The students are not taking the initiative to schedule enough meetings with the Capstone course instructor to explore improvements that could be made to the manual and/or presentation before the course ends. 4) The students are not spending enough time practicing before the actual presentation.

Measure 3:
Measure 3 Assessment tool: Results from the CMT LDRB Senior Learning Outcome Survey given to graduating seniors.
Measure 3 Criteria for Success: Students will answer yes at least 70% of the time to this question, As a graduating construction student do you feel that you have the general knowledge to be able to identify and solve problems using construction software estimating programs, CAD software, Microsoft Word, Excel, PowerPoint, and Project Management?.

Person(s) Responsible: Dr. David Hatfield, Mr. Duane Vanhook, Dr. Al Carter, Dr. Kathy Mathis
Completion Date: 08/24/2015

Analysis of Results for Measure 3: (include strengths & weaknesses)
Measure 3 Results: The CMT LDRB Senior Learning Outcome Survey is given to graduating seniors along with the CMT LDRB Senior Questionnaire. The CMT LDRB Senior Learning Outcome Survey asks the students for their opinion of their success in the mastery of the ten learning outcomes of the LDRB program. The results from the CMT LDRB Senior Learning Outcome Survey showed that 100% were able to answer yes to the question on the survey relating to this learning outcome and the criteria for success was 70%. This outcome was met. The CMT LDRB Senior Learning Outcome Survey and results are
Measure 3 Strengths: The students met the criteria for success for this learning outcome with 100% of the students responding yes when asked if they felt that they were able to develop, produce, and present a proposal for a subdivision (concept through completion) to a board of construction industry professionals. This measure is based completely on the students' perception of their mastery of the individual learning outcomes. Measure 3 Weakness: The students' opinion of their achievement of this learning outcome is significantly greater than industry leaders' overall expectations based on the Capstone scores. The students need more guidelines throughout the program with specific illustrations of how industry would perceive success of this learning outcome to have been met.

Use of Prior Results: The following changes were made after analysis of 2013-2014 assessment process for each learning outcome in the Land Development / Residential Building (LDRB) program. The documents are attached under the CURRENT MEASURES AND ANALYSIS OF RESULTS TAB. Measure 1: While the revised 2013-2014 rubric clarified how the items that are scored correlate with the individual learning outcomes, the new 2014-2015 rubric has changes made at the Capstone judges' request that are designed to make the scoring process easier for the judges. The rubric is called "LDRB Capstone CMT 4170 Score Sheet 2014-2015". The spreadsheet for scores designed for 2013-2014 was not changed for the 2014-2015 year. The criteria for success was also not changed and remains to 3.9 on the Likert scale (1 lowest 5 highest). Ongoing methods to improve mastery of learning outcomes are being continued. Trial runs of the students' Capstone presentations to their class two weeks prior to the actual presentation industry have been continued. This seems to help improve the presentations and will continue in order to improve the mastery of the learning outcomes. One on one meetings with individual instructors (especially the Capstone instructor) have been continued as this too seems to improve the presentations and will continue to improve the mastery of the ten learning outcomes. Measure 2: The measure described below, which was started in fall 2013, was left in place as is because it is proving to be a valuable measure to determine program effectiveness. (A new measure was added beginning fall 2013 which addresses the industry leaders' request to rank the students' readiness for employment in the Land Development / Residential Building industry using the Likert scale (5 is most ready and 1 is least ready). Industry assessment of their readiness to hire should represent the students' level of mastery of the ten learning outcomes of the program.) Measure 3: The measure below is continuing to be utilized as it provides the students' assessment of mastery of the learning outcomes. A new survey was developed for the graduating seniors. It separates the questions about the evaluation of their mastery of the individual learning outcomes from other general questions about the concentration. This survey is called, CMT LDRB Senior Learning Outcome Survey. The general questions about the concentration appear in a new document called, CMT LDRB Senior Questionnaire. The title of the spreadsheet was designed for compiling the students' evaluations of their mastery of the individual learning outcomes has been changed to LDRB Senior Learning Outcome Results 14-15. Ongoing methods to improve mastery of learning outcomes were continued, especially the instructors giving tangible examples of industry expectations of skills which help the students to better understand what industry desires from the program graduates.
Development / Residential Building (LDRB) Capstone presentation to industry. Measure 1 Criteria for Success: The average score from the section of the score sheet relating to this learning outcome for Land Development / Residential Building Capstone Presentation should be a minimum of 3.90 using the Likert scale (1 lowest-5 highest score).

Completion Date: 08/24/2015

Strengths: The students did not meet the criteria for success for this learning outcome. This measure is a broad based assessment tool and used for all learning outcomes for several reasons: 1) The Capstone course is a culmination of all of the LDRB courses. 2) The Capstone presentation is presented to industry leaders as well as the MTSU professors. 3) There is a Question and Answer period at the end of the presentation where the judges have an opportunity to ask the student any question they may have about the project and the student must answer the question on the spot. 4) The scoring rubric has recently been redesigned to provide more clarity concerning the learning outcomes.
The students are given the scoring rubric early in the semester in which they complete their Capstone presentation so they are aware of what the judges are looking for in their presentations and the way the learning outcomes are related to these skills and characteristics. 6) The Capstone presentation is extremely useful in building individual skills and confidence for future formal presentations. Measure 1 Weakness: The students did not meet the criteria for success for this learning outcome. The students’ failure to score at least a 3.9 on the Likert scale (1 lowest - 5 highest) indicates several areas of weakness. 1) The knowledge gained in the technical and administrative construction courses is lacking either due to the teachers’ presentation or the students’ study habits; both areas need improvement. Often projects completed in previous classes are not completed with the quality required for the Capstone manual/presentation. Both students and instructors need to improve in this area. 2) The students are not spending enough time examining previous Capstone manuals and presentations to know exactly what is expected in an excellent Capstone manual and presentation. 3) The students are not taking the initiative to schedule enough meetings with the Capstone course instructor to explore improvements that could be made to the manual and/or presentation before the course ends. 4) The students are not spending enough time practicing before the actual presentation.
score for this statement, Please rank the candidate's readiness for employment in the Land Dev. / Residential Building Industry. Use 5 as most ready and 1 as the least ready. This statement is included in the LDRB Capstone CMT 4170 Score Sheet 2014-2015. Measure 2 Criteria for Success: The average score for this statement (Please rank the candidate's readiness for employment in the Land Dev. / Residential Building Industry.) should be a minimum of 3.0 using the Likert scale (1 lowest-5 highest score).

Dr. David Hatfield, Mr. Duane Vanhook, Dr. Al Carter, Dr. Kathy Mathis

Completion Date: 08/24/2015

Measure 2 Results: The Land Development / Residential Building (LDRB) Capstone presentation to industry is the result of the culmination project for the entire LDRB program. Industry leaders and MTSU professors act as judges and score the presentations based on the scoring rubric. The rubric includes this statement, (Please rank the candidate's readiness for employment in the Land Dev. / Residential Building Industry. Use 5 as most ready and 1 as least ready.) This measure was met as the average score was 3.0 and the criteria for success was 3.0. The Capstone scoring rubric and the score sheet are attached (LDRB Capstone CMT 4170 Score Sheet 2014-2015 and Capstone CMT 4170 Scores 2014-2015).

Measure 2 Strengths: As part of the scoring of the Capstone presentation, the judges are asked to rank the candidate's readiness for employment in the Land Development / Residential Building Industry (using 5 as most ready and 1 as least ready). We find this measure to be very strong because the learning outcomes are based on what industry feels like the graduating student needs in order to show competency by the time of graduation. If industry ranks the student highly, we feel this is an indication of success in the mastery of the learning outcomes. Measure 2 Weakness: Although the criterion for success was met, there are still areas of needed improvement. Industry leaders and MTSU professors score the Capstone manual and presentation. These scores indicate the level of competency in all of the learning outcomes of the program. When the students' scores indicate they are lacking competency in the learning
outcomes, the readiness for employment scores are also low. The areas of weakness indicated include: 1) The knowledge gained in the technical and administrative construction courses is lacking either due to the teachers’ presentation or the students’ study habits; both areas need improvement. Often projects completed in previous classes are not completed with the quality required for the Capstone manual/presentation. Both students and instructors need to improve in this area. 2) The students are not spending enough time examining previous Capstone manuals and presentations to know exactly what is expected in an excellent Capstone manual and presentation. 3) The students are not taking the initiative to schedule enough meetings with the Capstone course instructor to explore improvements that could be made to the manual and/or presentation before the course ends. 4) The students are not spending enough time practicing before the actual presentation.

Measure 3: Measure 3 Assessment tool: Results from the CMT LDRB Senior Learning Outcome Survey given to graduating seniors. Measure 3 Criteria for Success: Students will answer yes at least 70% of the time to this question, As a graduating construction student do you feel that you have the general knowledge to be able to visualize a final product prior to development of a conceptual plan?

Person(s) Responsible:
Dr. David  Hatfield, Mr. Duane  Vanhook, Dr. Al Carter, Dr. Kathy Mathis

Completion Date: 08/24/2015

Analysis of Results for Measure 3: (include strengths & weaknesses) Measure 3 Results: The CMT LDRB Senior Learning Outcome Survey and results are
Measure 3
Strengths: The students met the criteria for success for this learning outcome with 100% of the students responding yes when asked if they felt that they were able to develop, produce, and present a proposal for a subdivision (concept through completion) to a board of construction industry professionals. This measure is based completely on the students’ perception of their mastery of the individual learning outcomes. Measure 3 Weakness: The students’ opinion of their achievement of this learning outcome is significantly greater than industry leaders overall expectations based on the Capstone scores. The students need more guidelines throughout the program with specific illustrations of how industry would perceive success of this learning outcome to have been met.

Use of Prior Results: The following changes were made after analysis of 2013-2014 assessment process for each learning outcome in the Land Development / Residential Building (LDRB) program. The documents are attached under the CURRENT MEASURES AND ANALYSIS OF RESULTS TAB. Measure 1: While the revised 2013-2014 rubric clarified how the items that are scored correlate with the individual learning outcomes, the new 2014-2015 rubric has changes made at the Capstone judges’ request that are designed to make the scoring process easier for the judges. The rubric is called “LDRB Capstone CMT 4170 Score Sheet 2014-2015” The spreadsheet for scores designed for 2013-2014 was not changed for the 2014-2015 year. The criteria for success was also not changed and remains 3.9 on the Likert scale (1 lowest 5 highest). Ongoing methods to improve mastery of learning outcomes are being continued. Trial runs of the students Capstone presentations to their class two weeks prior to the actual presentation industry have been continued. This seems to help improve the presentations and will continue in order to improve the mastery of the learning outcomes. One on one meetings with individual instructors (especially the Capstone instructor) have been continued as this too seems to improve the presentations and will continue to improve the mastery of the ten learning outcomes. Measure 2: The measure described below, which was started in fall 2013, was left in place as is because it is proving to be a valuable measure to determine program effectiveness. (A new measure was added beginning fall 2013 which addresses the industry leaders response to a request to rank the students readiness for employment in the Land Development / Residential Building industry using the Likert scale (5 is most ready and 1 is least ready). Industry’s assessment of their readiness to hire should represent the students level of mastery of the ten learning outcomes of the program.) Measure 3: The measure below is continuing to be utilized as it provides the students assessment of mastery of the learning outcomes. (A new survey was developed for the graduating seniors. It separates the questions about the evaluation of their mastery of the individual learning outcomes from other general questions about the concentration. This survey is called, CMT LDRB Senior Learning Outcome Survey. The general questions about the concentration appear in a new document called, CMT LDRB Senior Questionnaire.) The title of the spreadsheet was designed for compiling the students evaluations of their mastery of the individual learning outcomes has been changed to: LDRB Senior Learning Outcome Results 14-15. Ongoing methods to improve mastery of learning outcomes were continued, especially the instructors giving tangible examples of industry expectations of skills which help the students to better understand what industry desires from the program graduates.
Students should be able to evaluate, analyze, and synthesize a design business plan using knowledge gained from both technical and administrative construction courses.

Hatfield, Mr. Duane Vanhook, Dr. Al Carter, Dr. Kathy Mathis

Completion Date: 08/24/2015

Development / Residential Building (LDRB) Capstone presentation to industry. Measure 1 Criteria for Success: The average score from the section of the score sheet relating to this learning outcome for Land Development / Residential Building Capstone Presentation should be a minimum of 3.90 using the Likert scale (1 lowest-5 highest score).

The average score from the section of the score sheet relating to this learning outcome for Land Development / Residential Building Capstone Presentation should be a minimum of 3.90 using the Likert scale (1 lowest-5 highest score). The industry leaders pose as potential investors for a land development project. The land development will include a subdivision planned for a certain niche and the project includes several areas including: marketing analysis, infrastructure, house plans, sales and marketing plans, scheduling, business plan and a question and answer session. The rubric evaluates the Capstone project as a whole and associates skills and characteristics displayed by the students with the learning outcomes of the program. This measure was not met as the average score was 3.0 and the criteria for success was 3.9. The Capstone scoring rubric and the score sheet are attached (LDRB Capstone CMT 4170 Score Sheet 2014-2015 and Capstone CMT 4170 Scores 2014-2015). Measure 1 Strengths: The students did not meet the criteria for success for this learning outcome. This measure is a broad based assessment tool and used for all learning outcomes for several reasons: 1) The Capstone course is a culmination of all of the LDRB courses. 2) The Capstone presentation is presented to industry leaders as well as the MTSU professors. 3) There is a Question and Answer period at the end of the presentation where the judges have an opportunity to ask the student any question they may have about the project and the student must answer the question on the spot. 4) The scoring rubric has recently been redesigned to provide more clarity.
concerning the learning outcomes relationships to the skills and characteristics displayed by the students during their presentations.
5) The students are given the scoring rubric early in the semester in which they complete their Capstone presentation so they are aware of what the judges are looking for in their presentations and the way the learning outcomes are related to these skills and characteristics.
6) The Capstone presentation is extremely useful in building individual skills and confidence for future formal presentations.

Measure 1 Weakness: The students did not meet the criteria for success for this learning outcome. The students’ failure to score at least a 3.9 on the Likert scale (1 lowest - 5 highest) indicates several areas of weakness.
1) The knowledge gained in the technical and administrative construction courses is lacking either due to the teachers’ presentation or the students’ study habits; both areas need improvement. Often projects completed in previous classes are not completed with the quality required for the Capstone manual/presentation. Both students and instructors need to improve in this area.
2) The students are not spending enough time examining previous Capstone manuals and presentations to know exactly what is expected in an excellent Capstone manual and presentation.
3) The students are not taking the initiative to schedule enough meetings with the Capstone course instructor to explore improvements that could be made to the manual and/or presentation before the course ends.
4) The students are not spending enough time practicing before the actual presentation.

Future Actions: Describe Assessment Changes (measures such as rubrics, exams, diagnostic instruments, etc.):
We do not plan to make any assessment changes at this time.

Future Actions: Describe any additional resources needed (Leave blank if no additional resources are needed):
Measure 2: Measures 2 Assessment tool: Industry score for this statement, Please rank the candidate's readiness for employment in the Land Dev./Residential Building Industry. Use 5 as most ready and 1 as the least ready. This statement is included in the LDRB Capstone CMT 4170 Score Sheet 2014-2015. Measure 2 Criteria for Success: The average score for this statement (Please rank the candidate's readiness for employment in the Land Dev. / Residential Building Industry.) should be a minimum of 3.0 using the Likert scale (1 lowest-5 highest score).

Person(s) Responsible: Dr. David Hatfield, Mr. Duane Vanhook, Dr. Al Carter, Dr. Kathy Mathis

Completion Date: 08/24/2015

Analysis of Results for Measure 2: (include strengths & weaknesses):
Measure 2 Results: The Land Development / Residential Building (LDRB) Capstone presentation to industry is the result of the culmination project for the entire LDRB program. Industry leaders and MTSU professors act as judges and score the presentations based on the scoring rubric. The rubric includes this statement, (Please rank the candidate's readiness for employment in the Land Dev. / Residential Building Industry. Use 5 as most ready and 1 as least ready.) This measure was met as the average score was 3.0 and the criteria for success was 3.0. The Capstone scoring rubric and the score sheet are attached (LDRB Capstone CMT 4170 Score Sheet 2014-2015 and Capstone CMT 4170 Scores 2014-2015). Measure 2 Strengths: As part of the scoring of the Capstone presentation, the judges are asked to rank the candidate's readiness for employment in the Land Development / Residential Building Industry (using 5 as most ready and 1 as least ready). We find this measure to be very strong because the learning outcomes are based on what industry feels like the graduating student needs in order to show competency by the time of graduation. If industry ranks the student highly, we feel this is an indication of success in the mastery of the learning outcomes. Measure 2 Weakness: Although the criterion for success was met, there are still areas of needed improvement. Industry leaders and MTSU professors score the Capstone manual and presentation. These scores indicate the level of competency in all of the learning outcomes of the program. When the
students’ scores indicate they are lacking competency in the learning outcomes, the readiness for employment scores are also low. The areas of weakness indicated include: 1) The knowledge gained in the technical and administrative construction courses is lacking either due to the teachers’ presentation or the students’ study habits; both areas need improvement. Often projects completed in previous classes are not completed with the quality required for the Capstone manual/presentation. Both students and instructors need to improve in this area. 2) The students are not spending enough time examining previous Capstone manuals and presentations to know exactly what is expected in an excellent Capstone manual and presentation. 3) The students are not taking the initiative to schedule enough meetings with the Capstone course instructor to explore improvements that could be made to the manual and/or presentation before the course ends. 4) The students are not spending enough time practicing before the actual presentation.

**Measure 3:**
Measure 3 Assessment tool: Results from the CMT LDRB Senior Learning Outcome Survey given to graduating seniors.
Measure 3 Criteria for Success: Students will answer yes at least 70% of the time to this question, As a graduating construction student do you feel that you have the general knowledge to be able to evaluate, analyze, and synthesize a design business plan using knowledge gained from both technical and administrative construction courses?

Person(s) Responsible: Dr. David Hatfield, Mr. Duane Vanhook, Dr. Al Carter, Dr. Kathy Mathis

Competition Date: 08/24/2015

Analysis of Results for Measure 3:
(include strengths & weaknesses)
Measure 3 Results: The CMT LDRB Senior Learning Outcome Survey is given to graduating seniors along with the CMT LDRB Senior Questionnaire. The CMT LDRB Senior Learning Outcome Survey asks the students for their opinion of their success in the mastery of the ten learning outcomes of the LDRB program. The results from the CMT LDRB Senior Learning Outcome Survey showed that 100% were able to answer yes to the question on the survey relating to this learning outcome and the criteria for success
Measure 3 Strengths: The students met the criteria for success for this learning outcome with 100% of the students responding yes when asked if they felt that they were able to develop, produce, and present a proposal for a subdivision (concept through completion) to a board of construction industry professionals. This measure is based completely on the students’ perception of their mastery of the individual learning outcomes. Measure 3 Weakness: The students’ opinion of their achievement of this learning outcome is significantly greater than industry leaders overall expectations based on the Capstone scores. The students need more guidelines throughout the program with specific illustrations of how industry would perceive success of this learning outcome to have been met.

Use of Prior Results: The following changes were made after analysis of 2013-2014 assessment process for each learning outcome in the Land Development / Residential Building (LDRB) program. The documents are attached under the CURRENT MEASURES AND ANALYSIS OF RESULTS TAB. Measure 1: While the revised 2013-2014 rubric clarified how the items that are scored correlate with the individual learning outcomes, the new 2014-2015 rubric has changes made at the Capstone judges request that are designed to make the scoring process easier for the judges. The rubric is called "LDRB Capstone CMT 4170 Score Sheet 2014-2015". The spreadsheet for scores designed for 2013-2014 was not changed for the 2014-2015 year. The criteria for success was also not changed and remains 3.9 on the Likert scale (1 lowest 5 highest). Ongoing methods to improve mastery of learning outcomes are being continued. Trial runs of the students Capstone presentations to their class two weeks prior to the actual presentation industry have been continued. This seems to help improve the presentations and will continue in order to improve the mastery of the learning outcomes. One on one meetings with individual instructors (especially the Capstone instructor) have been continued as this too seems to improve the presentations and will continue to improve the mastery of the ten learning outcomes. Measure 2: The measure described below, which was started in fall 2013, was left in place as is because it is proving to be a valuable measure to determine program effectiveness. (A new measure was added beginning fall 2013 which addresses the industry leaders response to a request to rank the students readiness for employment in the Land Development / Residential Building industry using the Likert scale (5 is most ready and 1 is least ready). Industry's assessment of their readiness to hire should represent the students level of mastery of the ten learning outcomes of the program.) Measure 3: The measure below is continuing to be utilized as it provides the students assessment of mastery of the learning outcomes. (A new survey was developed for the graduating seniors. It separates the questions about the evaluation of their mastery of the individual learning outcomes from other general questions about the concentration. This survey is called, CMT LDRB Senior Learning Outcome Survey. The general questions about the concentration appear in a new document called, CMT LDRB Senior Questionnaire.) The title of the spreadsheet was designed for compiling the students evaluations of their mastery of the individual learning outcomes has been changed to: LDRB Senior Learning Outcome Results 14-15. Ongoing methods to improve mastery of learning outcomes were continued, especially the instructors giving tangible examples of industry's expectations of skills which help the students to better understand what industry desires from the program graduates.
**Student Learning Outcome:**
Land Development / Residential Building
Students should be able to understand the ethical, professional, and social responsibilities of a construction professional.

**Measure 1:**
Measure 1 Assessment tool: Scores from students Land Development / Residential Building (LDRB) Capstone presentation to industry. Measure 1 Criteria for Success: The average score from the section of the score sheet relating to this learning outcome for Land Development / Residential Building Capstone Presentation should be a minimum of 3.90 using the Likert scale (1 lowest- 5 highest score).

**Person(s) Responsible:**
Dr. David Hatfield, Mr. Duane Vanhook, Dr. Al Carter, Dr. Kathy Mathis

**Completion Date:**
08/24/2015

**Analysis of Results for Measure 1.**
(include strengths & weaknesses):
Measure 1 Results: The Land Development / Residential Building (LDRB) Capstone presentation to industry is the result of the culmination project for the entire LDRB program. Industry leaders and MTSU professors act as judges and score the presentations based on the scoring rubric. The industry leaders pose as potential investors for a land development project. The land development will include a subdivision planned for a certain niche and the project includes several areas including: marketing analysis, infrastructure, house plans, sales and marketing plans, scheduling, business plan and a question and answer session. The rubric evaluates the Capstone project as a whole and associates skills and characteristics displayed by the students with the learning outcomes of the program. This measure was not met as the average score was 3.0 and the criteria for success was 3.9. The Capstone scoring rubric and the score sheet are attached (LDRB Capstone CMT 4170 Score Sheet 2014-2015 and Capstone CMT 4170 Scores 2014-2015).

**Future Actions:**
Describe Program Changes (adding a course, assignment, project, etc.):
We intend to make two changes to the Land Development / Residential Building Construction Management concentration/option. We plan to create a new class, Construction Fundamentals, CMT 1100. This class will be added to the curriculum beginning Fall 2015. We plan for it to replace Introduction to Operations Management, ET 3910 and Professional Development Seminar, ET 4710. Construction Fundamentals will be an introduction to the major systems encountered when managing...
answer the question on the spot. 4) The scoring rubric has recently been redesigned to provide more clarity concerning the learning outcomes relationships to the skills and characteristics displayed by the students during their presentations. 5) The students are given the scoring rubric early in the semester in which they complete their Capstone presentation so they are aware of what the judges are looking for in their presentations and the way the learning outcomes are related to these skills and characteristics. 6) The Capstone presentation is extremely useful in building individual skills and confidence for future formal presentations. Measure 1 Weakness: The students did not meet the criteria for success for this learning outcome. The students’ failure to score at least a 3.9 on the Likert scale (1 lowest - 5 highest) indicates several areas of weakness. 1) The knowledge gained in the technical and administrative construction courses is lacking either due to the teachers’ presentation or the students’ study habits; both areas need improvement. Often projects completed in previous classes are not completed with the quality required for the Capstone manual/presentation. Both students and instructors need to improve in this area. 2) The students are not spending enough time examining previous Capstone manuals and presentations to know exactly what is expected in an excellent Capstone manual and presentation. 3) The students are not taking the initiative to schedule enough meetings with the Capstone course instructor to explore improvements that could be made to the manual and/or presentation before the course ends. 4) The students are not spending construction. This class will include those operations of the residential and commercial construction industry; their similarities, as well as how they differ in scope and daily practice.

Future Actions

Describe Assessment Changes (measures such as rubrics, exams, diagnostic instruments, etc.): We do not plan to make any assessment changes at this time.

Future Actions

Describe any additional resources needed (Leave blank if no additional resources are needed):
Measure 2: Measure 2 Assessment tool: Industry score for this statement, Please rank the candidate's readiness for employment in the Land Dev. / Residential Building Industry. Use 5 as most ready and 1 is the least ready. This statement is included in the LDRB Capstone CMT 4170 Score Sheet 2014-2015. Measure 2 Criteria for Success: The average score for this statement (Please rank the candidate's readiness for employment in the Land Dev. / Residential Building Industry.) should be a minimum of 3.0 using the Likert scale (1 lowest-5 highest score).

Person(s) Responsible: Dr. David Hatfield, Mr. Duane Vanhook, Dr. Al Carter, Dr. Kathy Mathis

Completion Date: 08/24/2015

Analysis of Results for Measure 2: (include strengths & weaknesses): Measure 2 Results: The Land Development / Residential Building (LDRB) Capstone presentation to industry is the result of the culmination project for the entire LDRB program. Industry leaders and MTSU professors act as judges and score the presentations based on the scoring rubric. This measure was met as the average score was 3.0 and the criteria for success was 3.0. The Capstone scoring rubric and the score sheet are attached (LDRB Capstone CMT 4170 Score Sheet 2014-2015 and Capstone CMT 4170 Scores 2014-2015).

Measure 2 Strengths: As part of the scoring of the Capstone presentation, the judges are asked to rank the candidate's readiness for employment in the Land Development / Residential Building Industry (using 5 as most ready and 1 as least ready). We find this measure to be very strong because the learning outcomes are based on what industry feels like the graduating student needs in order to show competency by the time of graduation. If industry ranks the student highly, we feel this is an indication of success in the mastery of the learning outcomes.

Measure 2 Weakness: Although the criterion for success was met, there are still areas of needed improvement. Industry leaders and MTSU professors score the Capstone manual and presentation. These
scores indicate the level of competency in all of the learning outcomes of the program. When the students’ scores indicate they are lacking competency in the learning outcomes, the readiness for employment scores are also low. The areas of weakness indicated include: 1) The knowledge gained in the technical and administrative construction courses is lacking either due to the teachers’ presentation or the students’ study habits; both areas need improvement. Often projects completed in previous classes are not completed with the quality required for the Capstone manual/presentation. Both students and instructors need to improve in this area. 2) The students are not spending enough time examining previous Capstone manuals and presentations to know exactly what is expected in an excellent Capstone manual and presentation. 3) The students are not taking the initiative to schedule enough meetings with the Capstone course instructor to explore improvements that could be made to the manual and/or presentation before the course ends. 4) The students are not spending enough time practicing before the actual presentation.

**Measure 3:**

**Measure 3 Assessment tool:** Results from the CMT LDRB Senior Learning Outcome Survey given to graduating seniors.

**Measure 3 Criteria for Success:** Students will answer yes at least 70% of the time to this question, As a graduating construction student do you feel that you understand the ethical, professional, and social responsibilities of a construction professional?

**Person(s) Responsible:** Dr. David Hatfield, Mr. Duane Vanhook, Dr. Al Carter, Dr. Kathy Mathis

**Completion Date:** 08/24/2015

**Analysis of Results for Measure 3:** (include strengths & weaknesses)

**Measure 3 Results:** The CMT LDRB Senior Learning Outcome Survey is given to graduating seniors along with the CMT LDRB Senior Questionnaire. The CMT LDRB Senior Learning Outcome Survey asks the students for their opinion of their success in the mastery of the ten learning outcomes of the LDRB program. The results from the CMT LDRB Senior Learning Outcome Survey showed that 100% were able
Use of Prior Results: The following changes were made after analysis of 2013-2014 assessment process for each learning outcome in the Land Development / Residential Building (LDRB) program. The documents are attached under the CURRENT MEASURES AND ANALYSIS OF RESULTS TAB. Measure 1: While the revised 2013-2014 rubric clarified how the items that are scored correlate with the individual learning outcomes, the new 2014-2015 rubric has changes made at the Capstone judges' request that are designed to make the scoring process easier for the judges. The rubric is called "LDRB Capstone CMT 4170 Score Sheet 2014-2015" The spreadsheet for scores designed for 2013-2014 was not changed for the 2014-2015 year. The criteria for success was also not changed and remains 3.9 on the Likert scale (1 lowest 5 highest). Ongoing methods to improve mastery of learning outcomes are being continued. Trial runs of the students Capstone presentations to their class two weeks prior to the actual presentation industry have been continued. This seems to help improve the presentations and will continue in order to improve the mastery of the learning outcomes. One on one meetings with individual instructors (especially the Capstone instructor) have been continued as this too seems to improve the presentations and will continue to improve the mastery of the learning outcomes. (A new survey was added beginning fall 2013 which addresses the industry leaders response to a request to rank the students readiness for employment in the Land Development / Residential Building industry using the Likert scale (5 is most ready and 1 is least ready). Industrys assessment of their readiness to hire should represent the students level of mastery of the ten learning outcomes of the program.) Measure 2: The measure described below, which was started in fall 2013, was left in place as is because it is proving to be a valuable measure to determine program effectiveness. The spreadsheet was designed for compiling the students evaluations of their mastery of the learning outcomes. (A new survey was designed for compiling the students evaluations of their mastery of the individual learning outcomes has been changed to: LDRB Senior Learning Outcome Results 14-15. Ongoing methods to
Student Learning Outcome:
Land Development / Residential Building
Students should be able to use teamwork and leadership skills to seek and share knowledge and to perform tasks creatively and effectively.

Measure 1:
Measure 1 Assessment tool: Scores from students Land Development / Residential Building (LDRB) Capstone presentation to industry. Measure 1 Criteria for Success: The average score from the section of the score sheet relating to this learning outcome for Land Development / Residential Building Capstone Presentation should be a minimum of 3.90 using the Likert scale (1 lowest-5 highest score).

Person(s) Responsible:
Dr. David Hatfield, Mr. Duane Vanhook, Dr. Al Carter, Dr. Kathy Mathis

Completion Date: 08/24/2015

Analysis of Results for Measure 1. (include strengths & weaknesses):
Measure 1 Results: The Land Development / Residential Building (LDRB) Capstone presentation to industry is the result of the culmination project for the entire LDRB program. Industry leaders and MTSU professors act as judges and score the presentations based on the scoring rubric. The industry leaders pose as potential investors for a land development project. The land development will include a subdivision planned for a certain niche and the project includes several areas including: marketing analysis, infrastructure, house plans, sales and marketing plans, scheduling, business plan and a question and answer session. The rubric evaluates the Capstone project as a whole and associates skills and characteristics displayed by the students with the learning outcomes of the program. This measure was not met as the average score was 3.0 and the criteria for success was 3.9. The Capstone scoring rubric and the score sheet are attached (LDRB Capstone CMT 4170 Score Sheet 2014-2015 and Capstone CMT 4170 Scores 2014-2015). Measure 1 Strengths: The students did not meet the criteria for success for this learning outcome. This measure is a broad based assessment tool and used for all learning outcomes for several reasons: 1) The Capstone course is a culmination of all of the LDRB courses. 2) The Capstone presentation is presented to industry leaders as well as the MTSU professors. 3) There is a Question and Answer period at the end of the presentation where the judges have

Supporting Document(s):
Capstone CMT 4170 Scores 2014-2015.xlsx
CMT LDRB Senior Learning Outcome Survey 14-15 results.docx
LDRB Capstone CMT 4170 Score Sheet 2014-2015.xlsx
CMT LDRB Senior Learning Outcome Survey 2014-15.docx

Future Actions: Describe Program Changes (adding a course, assignment, project, etc.):
We intend to make two changes to the Land Development / Residential Building Construction Management concentration/option. We plan to change our outcomes. The three concentrations/options were developed at different times and have two different directors. This has led to a lack of cohesiveness within the Construction Management major. A concentrated effort is being made to correct this issue. One of the first steps is to have common outcomes. We plan to make a curriculum change by creating a new class. Construction Fundamentals, CMT 1100. This class will be added to the curriculum beginning Fall 2015. We plan for it to replace Introduction to Operations Management, ET 3910 and Professional Development Seminar, ET 4710. Construction Fundamentals will be
an opportunity to ask the student any question they may have about the project and the student must answer the question on the spot. 4) The scoring rubric has recently been redesigned to provide more clarity concerning the learning outcomes relationships to the skills and characteristics displayed by the students during their presentations. 5) The students are given the scoring rubric early in the semester in which they complete their Capstone presentation so they are aware of what the judges are looking for in their presentations and the way the learning outcomes are related to these skills and characteristics. 6) The Capstone presentation is extremely useful in building individual skills and confidence for future formal presentations. Measure 1 Weakness: The students did not meet the criteria for success for this learning outcome. The students’ failure to score at least a 3.9 on the Likert scale (1 lowest - 5 highest) indicates several areas of weakness. 1) The knowledge gained in the technical and administrative construction courses is lacking either due to the teachers’ presentation or the students’ study habits; both areas need improvement. Often projects completed in previous classes are not completed with the quality required for the Capstone manual/presentation. Both students and instructors need to improve in this area. 2) The students are not spending enough time examining previous Capstone manuals and presentations to know exactly what is expected in an excellent Capstone manual and presentation. 3) The students are not taking the initiative to schedule enough meetings with the Capstone course instructor to explore improvements that could be made to the manual and/or an introduction to the major systems encountered when managing construction. This class will include those operations of the residential and commercial construction industry; their similarities, as well as how they differ in scope and daily practice.

Future Actions: Describe Assessment Changes (measures such as rubrics, exams, diagnostic instruments, etc.): We do not plan to make any assessment changes at this time.

Future Actions: Describe any additional resources needed (Leave blank if no additional resources are needed):
<table>
<thead>
<tr>
<th>Measure 2:</th>
<th>Person(s) Responsible: Dr. David Hatfield, Mr. Duane Vanhook, Dr. Al Carter, Dr. Kathy Mathis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measure 2 Assessment tool: Industry's score for this statement, Please rank the candidate's readiness for employment in the Land Dev. / Residential Building Industry. Use 5 as most ready and 1 is the least ready. This statement is included in the LDRB Capstone CMT 4170 Score Sheet 2014-2015. Measure 2 Criteria for Success: The average score for this statement (Please rank the candidate's readiness for employment in the Land Dev. / Residential Building Industry.) should be a minimum of 3.0 using the Likert scale (1 lowest-5 highest score).</td>
<td>Completion Date: 08/24/2015</td>
</tr>
</tbody>
</table>

**Analysis of Results for Measure 2:**

Include strengths & weaknesses:

Measure 2 Results: The Land Development / Residential Building (LDRB) Capstone presentation to industry is the result of the culmination project for the entire LDRB program. Industry leaders and MTSU professors act as judges and score the presentations based on the scoring rubric. The rubric includes this statement, (Please rank the candidate's readiness for employment in the Land Dev. / Residential Building Industry. Use 5 as most ready and 1 as least ready.) This measure was met as the average score was 3.0 and the criteria for success was 3.0. The Capstone scoring rubric and the score sheet are attached (LDRB Capstone CMT 4170 Score Sheet 2014-2015 and Capstone CMT 4170 Scores 2014-2015).

**Strengths:**

As part of the scoring of the Capstone presentation, the judges are asked to rank the candidate's readiness for employment in the Land Development / Residential Building Industry (using 5 as most ready and 1 as least ready). We find this measure to be very strong because the learning outcomes are based on what industry feels like the graduating student needs in order to show competency by the time of graduation. If industry ranks the student highly, we feel this is an indication of success in the mastery of the learning outcomes.

**Weakness:**

Although the criterion for success was met, there are still areas of needed improvement. Industry leaders and MTSU
Measure 3:
Measure 3 Assessment tool: Results from the CMT LDRB Senior Learning Outcome Survey given to graduating seniors.
Measure 3 Criteria for Success: Students will answer yes at least 70% of the time to this question. As a graduating construction student do you feel that you have the general knowledge to be able to use teamwork and leadership skills to seek and share knowledge and to perform tasks creatively and effectively?

Person(s) Responsible:
Dr. David Hatfield, Mr. Duane Vanhook, Dr. Al Carter, Dr. Kathy Mathis

Completion Date: 08/24/2015

Analysis of Results for Measure 3: (include strengths & weaknesses)
Measure 3 Results: The CMT LDRB Senior Learning Outcome Survey is given to graduating seniors along with the CMT LDRB Senior Questionnaire. The CMT LDRB Senior Learning Outcome Survey asks the students for their opinion of their success in the mastery of the ten learning outcomes of the LDRB program. The results from the CMT LDRB Senior Learning Outcome Survey indicate that students are somewhat proficient in their ability to use teamwork and leadership skills to seek and share knowledge and to perform tasks creatively and effectively. However, there are areas for improvement, particularly in the technical and administrative construction courses. The survey results suggest that students need to spend more time examining previous Capstone manuals and presentations in order to prepare for the actual presentation.

The areas of weakness indicated include:

1. The knowledge gained in the technical and administrative construction courses is lacking either due to the teachers’ presentation or the students’ study habits; both areas need improvement. Often projects completed in previous classes are not completed with the quality required for the Capstone manual/presentation. Both students and instructors need to improve in this area.
2. The students are not spending enough time examining previous Capstone manuals and presentations to know exactly what is expected in an excellent Capstone manual and presentation.
3. The students are not taking the initiative to schedule enough meetings with the Capstone course instructor to explore improvements that could be made to the manual and/or presentation before the course ends.
4. The students are not spending enough time practicing before the actual presentation.
Survey showed that 100% were able to answer yes to the question on the survey relating to this learning outcome and the criteria for success was 70%. This outcome was met. The CMT LDRB Senior Learning Outcome Survey and results are attached (CMT LDRB Senior Learning Outcome Survey 2014-15, Senior Learning Outcome Results 2014-15, and Learning Outcome Average Scores). Measure 3

Strengths: The students met the criteria for success for this learning outcome with 100% of the students responding yes when asked if they felt that they were able to develop, produce, and present a proposal for a subdivision (concept through completion) to a board of construction industry professionals. This measure is based completely on the students' perception of their mastery of the individual learning outcomes. Measure 3

Weakness: The students' opinion of their achievement of this learning outcome is significantly greater than industry leaders' overall expectations based on the Capstone scores. The students need more guidelines throughout the program with specific illustrations of how industry would perceive success of this learning outcome to have been met.

Use of Prior Results: The following changes were made after analysis of 2013-2014 assessment process for each learning outcome in the Land Development / Residential Building (LDRB) program. The documents are attached under the CURRENT MEASURES AND ANALYSIS OF RESULTS TAB. Measure 1: While the revised 2013-2014 rubric clarified how the items that are scored correlate with the individual learning outcomes, the new 2014-2015 rubric has changes made at the Capstone judges' request that are designed to make the scoring process easier for the judges. The rubric is called "LDRB Capstone CMT 4170 Score Sheet 2014-2015". The spreadsheet for scores designed for 2013-2014 was not changed for the 2014-2015 year. The criteria for success was also not changed and remains 3.9 on the Likert scale (1 lowest, 5 highest). Ongoing methods to improve mastery of learning outcomes are being continued. Trial runs of the students' Capstone presentations to their class two weeks prior to the actual presentation industry have been continued. This seems to help improve the presentations and will continue in order to improve the mastery of the learning outcomes. One on one meetings with individual instructors (especially the Capstone instructor) have been continued as this too seems to improve the presentations and will continue to improve the mastery of the ten learning outcomes. Measure 2: The measure described below, which was started in fall 2013, was left in place as is because it is proving to be a valuable measure to determine program effectiveness. (A new measure was added beginning fall 2013 which addresses the industry leaders' response to a request to rank the students' readiness for employment in the Land Development / Residential Building industry using the Likert scale (5 is most ready and 1 is least ready). Industry assessment of their readiness to hire should represent the students' level of mastery of the ten learning outcomes of the program.) Measure 3: The measure below is continuing to be utilized as it provides the students' assessment of mastery of the learning outcomes. (A new survey was developed for the graduating seniors. It separates the questions about the evaluation of their mastery of the individual learning outcomes from other general questions about the concentration. This survey is called, CMT LDRB Senior Learning Outcome Survey. The general questions about the concentration appear in a new document called, CMT LDRB Senior Questionnaire.) The title of the
Student Learning Outcome:
Land Development / Residential Building
Students should be able to gather, analyze, synthesize, and apply research effectively to become a productive member of the construction industry.

Measure 1:
Measure 1 Assessment tool: Scores from students Land Development / Residential Building (LDRB) Capstone presentation to industry. Measure 1 Criteria for Success: The average score from the section of the score sheet relating to this learning outcome for Land Development / Residential Building Capstone Presentation should be a minimum of 3.90 using the Likert scale (1 lowest-5 highest score).

Person(s) Responsible:
Dr. David Hatfield, Mr. Duane Vanhook, Dr. Al Carter, Dr. Kathy Mathis

Completion Date: 08/24/2015

Analysis of Results for Measure 1:
(include strengths & weaknesses):

Measure 1 Results: The Land Development / Residential Building (LDRB) Capstone presentation to industry is the result of the culmination project for the entire LDRB program. Industry leaders and MTSU professors act as judges and score the presentations based on the scoring rubric. The industry leaders pose as potential investors for a land development project. The land development will include a subdivision planned for a certain niche and the project includes several areas including: marketing analysis, infrastructure, house plans, sales and marketing plans, scheduling, business plan and a question and answer session. The rubric evaluates the Capstone project as a whole and associates skills and characteristics displayed by the students with the learning outcomes of the program. This measure was not met as the average score was 3.0 and the criteria for success was 3.9. The Capstone scoring rubric and the score sheet are attached (LDRB Capstone CMT 4170 Score Sheet 2014-2015).

Strengths: The students did not meet the criteria for success for this learning outcome. This measure is a broad based assessment tool and used for all learning outcomes for several reasons: 1) The Capstone course is a culmination of all of the LDRB courses. 2) The Capstone presentation is presented to industry leaders as well as the MTSU professors. 3) There is a Question and Answer period at the end of the presentation.

Supporting Document(s):
Capstone CMT 4170 Scores 2014-2015.xlsx
CMT LDRB Senior Learning Outcome Survey 14-15 results.docx
CMT LDRB Senior Learning Outcome Survey 2014-15.docx
LDRB Capstone CMT 4170 Score Sheet 2014-2015.xlsx

Future Actions:
Describe Program Changes (adding a course, assignment, project, etc.): We intend to make two changes to the Land Development / Residential Building Construction Management concentration/option. We plan to change our outcomes. The three concentrations/options were developed at different times and have two different directors. This has led to a lack of cohesiveness within the Construction Management major. A concentrated effort is being made to correct this issue. One of the first steps is to have common outcomes. We plan to make a curriculum change by creating a new class. Construction Fundamentals, CMT 1100. This class will be added to the curriculum beginning Fall 2015. We plan for it to replace Introduction to Operations Management, ET 3910 and Professional Development Seminar, ET 4710.
presentation where the judges have an opportunity to ask the student any question they may have about the project and the student must answer the question on the spot. 4) The scoring rubric has recently been redesigned to provide more clarity concerning the learning outcomes relationships to the skills and characteristics displayed by the students during their presentations. 5) The students are given the scoring rubric early in the semester in which they complete their Capstone presentation so they are aware of what the judges are looking for in their presentations and the way the learning outcomes are related to these skills and characteristics. 6) The Capstone presentation is extremely useful in building individual skills and confidence for future formal presentations. Measure 1 Weakness: The students did not meet the criteria for success for this learning outcome. The students’ failure to score at least a 3.9 on the Likert scale (1 lowest - 5 highest) indicates several areas of weakness. 1) The knowledge gained in the technical and administrative construction courses is lacking either due to the teachers’ presentation or the students’ study habits; both areas need improvement. Often projects completed in previous classes are not completed with the quality required for the Capstone manual/presentation. Both students and instructors need to improve in this area. 2) The students are not spending enough time examining previous Capstone manuals and presentations to know exactly what is expected in an excellent Capstone manual and presentation. 3) The students are not taking the initiative to schedule enough meetings with the Capstone course instructor to explore improvements that could be made.

Future Actions: Describe Assessment Changes (measures such as rubrics, exams, diagnostic instruments, etc.): We do not plan to make any assessment changes at this time.

Future Actions: Describe any additional resources needed (Leave blank if no additional resources are needed):
Measure 2:
Measure 2 Assessment tool: Industry score for this statement. Please rank the candidate's readiness for employment in the Land Dev. / Residential Building Industry. Use 5 as most ready and 1 is the least ready. This statement is included in the LDRB Capstone CMT 4170 Score Sheet 2014-2015. Measure 2 Criteria for Success: The average score for this statement (Please rank the candidate’s readiness for employment in the Land Dev. / Residential Building Industry.) should be a minimum of 3.0 using the Likert scale (1 lowest-5 highest score).

Person(s) Responsible:
Dr. David Hatfield, Mr. Duane Vanhook, Dr. Al Carter, Dr. Kathy Mathis

Completion Date: 08/24/2015

Analysis of Results for Measure 2: (include strengths & weaknesses):
Measure 2 Results: The Land Development / Residential Building (LDRB) Capstone presentation to industry is the result of the culmination project for the entire LDRB program. Industry leaders and MTSU professors act as judges and score the presentations based on the scoring rubric. The rubric includes this statement, (Please rank the candidate's readiness for employment in the Land Dev. / Residential Building Industry. Use 5 as most ready and 1 as least ready.) This measure was met as the average score was 3.0 and the criteria for success was 3.0. The Capstone scoring rubric and the score sheet are attached (LDRB Capstone CMT 4170 Score Sheet 2014-2015 and Capstone CMT 4170 Scores 2014-2015). Measure 2 Strengths: As part of the scoring of the Capstone presentation, the judges are asked to rank the candidate’s readiness for employment in the Land Development / Residential Building Industry (using 5 as most ready and 1 as least ready). We find this measure to be very strong because the learning outcomes are based on what industry feels like the graduating student needs in order to show competency by the time of graduation. If industry ranks the student highly, we feel this is an indication of success in the mastery of the learning outcomes. Measure 2 Weakness: Although the criterion for success was met, there are still areas of needed improvement.
Industry leaders and MTSU professors score the Capstone manual and presentation. These scores indicate the level of competency in all of the learning outcomes of the program. When the students’ scores indicate they are lacking competency in the learning outcomes, the readiness for employment scores are also low. The areas of weakness indicated include: 1) The knowledge gained in the technical and administrative construction courses is lacking either due to the teachers’ presentation or the students’ study habits; both areas need improvement. Often projects completed in previous classes are not completed with the quality required for the Capstone manual/presentation. Both students and instructors need to improve in this area. 2) The students are not spending enough time examining previous Capstone manuals and presentations to know exactly what is expected in an excellent Capstone manual and presentation. 3) The students are not taking the initiative to schedule enough meetings with the Capstone course instructor to explore improvements that could be made to the manual and/or presentation before the course ends. 4) The students are not spending enough time practicing before the actual presentation.

Measure 3: Measure 3 Assessment tool: Results from the CMT LDRB Senior Learning Outcome Survey given to graduating seniors. Measure 3 Criteria for Success: Students will answer yes at least 70% of the time to this question. As a graduating construction student do you feel that you have the general knowledge to be able to gather; analyze; synthesize; and apply research effectively to become a productive member of the construction industry? Person(s) Responsible: Dr. David Hatfield, Mr. Duane Vanhook, Dr. Al Carter, Dr. Kathy Mathis. Completion Date: 08/24/2015

Analysis of Results for Measure 3: (include strengths & weaknesses) Measure 3 Results: The CMT LDRB Senior Learning Outcome Survey is given to graduating seniors along with the CMT LDRB Senior Questionnaire. The CMT LDRB Senior Learning Outcome Survey asks the students for their opinion of their success in the mastery of the ten learning outcomes of the LDRB program. The results from the CMT
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Measure 3

Strengths: The students met the criteria for success for this learning outcome with 100% of the students responding yes when asked if they felt that they were able to develop, produce, and present a proposal for a subdivision (concept through completion) to a board of construction industry professionals. This measure is based completely on the students' perception of their mastery of the individual learning outcomes.