Eastern West Virginia Community and Technical College
COURSE ASSESSMENT REPORT

Course Title and Number: **ELM 217** **Industrial Maintenance Fundamentals**	**Academic Term and Year of Assessment Activity (Ex: Fall, 2014)** **Spring 2015**
Report Submitted By: Skip Landes	**Number of Students Assessed: 10**
Date Report Submitted: 5-26-15	**Number of Sections Included: 1**
Course Delivery Format (list all modalities used in sections assessed. Ex: web based, VDL, traditional section, hybrid course, etc.): Lecture / Hands-On Lab and traditional delivery.	

Course Role in the Curriculum

Provide a description of the role the course serves in the curriculum (i.e. general education requirement, program technical core, restricted elective, etc.). Note all as appropriate.

ELM 217 introduces the student to the needs of mechanics and technicians working with industrial mechanical and power transmission systems. Terminology and use of basic tools and devices associated with millwright and industrial maintenance will be studied. Hand tools, fasteners, lubrication, bearings, seals and gaskets; belt and chain drives; gears, couplings, clutches and brakes will be covered.

Assessment Methods

Provide a description of the assessment process used. Include description of instrument and performance standards in description. Note all methods.

The ELM 217 course assessment report focuses on some of the needs of mechanics to work on mechanical machines either wind driven or industrial manufacturing type of equipment. The text used for the course is *Industrial Mechanics and Maintenance* by Larry Chastain. The lectures and chapter review questions were generated from this text. The hands on lab work was made up of several different projects relating to the text material. The projects had instructions given but no task sheets were developed. The data for this assessment will come from the final written test given at the end of the semester.

The Outcomes being assessed and method used are as follows:

26. Discuss the different V-belts drives used such as classical, cogged, narrow-groove, banded, light duty or fractional-horsepower; and variable-speed V-belts.

Final test question #3 – What is a banded V-belt?

Answer – Banded V-belt is a multiple V-belt in which individual V-belts are attached with a common backing.

29. Identify the different types of chain drives such as roller, self-lubricating, double pitch roller, inverted tooth, engineered-class steel, general-purpose cast, and drag conveyor.

Final test question #9 – Name the three types of drag conveyor chain?

Answer - H-type drag chain
Steel-bar drag chain
Combination-type chain

33. Describe the different gears used such as spur, helical, level and worm gears.

Final test question #13 – What are the three major configurations of spur gears drives?

Answer – Internal
External
Rack and pinion

36. Explain the different couplings used such as rigid, sleeve, ribbed, flange, flexible, gear, metallic-element, and metallic-grid couplings.

Final test question #17 – What are the three common types of rigid couplings?

Answer – Sleeve
Ribbed
Flange

41. Explain indexing, backstopping and over running clutch configurations; and applications.

Final test question #23 – How does a wrap-spring over running clutch work?

Answer – When the spring is rotated in one direction, it tightens on the hub and locks the clutch.

Assessment Results

Provide a summary of results including tables/charts. Incorporate information from previous assessments as appropriate. Append additional pages if necessary. If appending, include notation in box to "See attached".

Course Outcomes	Number of Students Answering Correct	Number of Students Answering Wrong	Composite Score
Outcome 26:	7	3	10
Outcome 29:	7	3	10
Outcome 33:	8	2	10
Outcome 36:	6	4	10
Outcome 41:	9	1	10
Total Answers	37	13	50
Percentage	74%	26%	100%

Course Level Assessment Summary of Outcomes, Indicators and Results Course Title and Number: ELM 217 Industrial Maintenance Fundaments Number of students in assessment sample = 10 Number of Sections in Assessment = 1 Add additional rows to table if necessary				
Learning Outcomes (Insert learning outcomes assessed during this cycle)	**Indicator (Insert indicators used for each outcome: exam question, scoring rubric, etc. Be specific)**	**Percent of Correct Responses**	**Percent of Incorrect Responses**	**Performance Standard Met (75%)* (yes or no)**
Outcome 26:	**Discuss the different V-belts drives used such as classical, cogged, narrow-groove, banded, light duty or fractional-horsepower; and variable-speed V-belts.** Final test question #3 – What is a banded V-belt? Answer – Banded V-belt is a multiple V-belt in which individual V-belts are attached with a common backing**.**	70%	30%	No
Outcome 29:	**Identify the different types of chain drives such as roller, self-lubricating, double pitch roller, inverted tooth, engineered-class steel, general-purpose cast, and drag conveyor.** Final test question #9 – Name the three types of drag conveyor chain? Answer - H-type drag chain Steel-bar drag chain Combination-type chain	70%	30%	No
Outcome 33:	**Describe the different gears used such as spur, helical, level and worm gears.** Final test question #13 – What are the three major configurations of spur gears drives? Answer – Internal External Rack and pinion	80%	20%	Yes

Outcome 36:	**Explain the different couplings used such as rigid, sleeve, ribbed, flange, flexible, gear, metallic-element, and metallic-grid couplings.** Final test question #17 – What are the three common types of rigid couplings? Answer – Sleeve Ribbed Flange	60%	40%	No
Outcome 41:	**Explain indexing, backstopping and over running clutch configurations; and applications.** Final test question #23 – How does a wrap-spring over running clutch work? Answer – When the spring is rotated in one direction, it tightens on the hub and locks the clutch.	90%	10%	Yes

* Please note if using a different minimum performance standard.

Conclusions

Provide a brief summary of conclusions derived based on analysis of data. Append additional pages if necessary. If appending, include notation in box to "See attached".

As the above table shows us, only two outcomes met standard performance. Some reasons for this poor performance may be: 1- the final was a completion test with no multiple choices or true and false questions, 2- two of the students did very little studying with their test results being 44% (11 correct out of 25), 3- I picked the hard outcomes to assess. The high score for this final was 100% made by four students. The low test score was 44% made by two students. The overall average for the test was 94% which does not reflect what the outcome standards tell us. The results do tell us that a different approach on teaching this class maybe needed, but with a small class size the scores are easily affected adversely.

Previous Assessment Reports and Results

Date of Previous Assessment: N/A

List of Outcomes Not Met: N/A

Summary of Actions Taken to Address Unmet Learning Outcomes: Append additional pages if necessary. If appending, include notation in box to "See attached".

Action Plan and Date for Reassessment **Identify action plan for improvement or maintaining current performance levels including outcomes identified for re-assessment, curriculum revision, LOT proposal, new or revised course activities to reinforce learning outcomes, etc. Append additional pages if necessary. If appending, include notation in box to "See attached".**
The questions on the final test came from the review questions for each chapter. Each student had to complete the end of chapter review by open book and save these quizzes because they were told that the final came from these review questions. A week before the final I gave out a study guide in which I would reference the section of the chapter that the test question came from. With this study guide I also reviewed the final test questions and they were allowed to mark the questions on the study guide as well as their chapter review test. I am not sure how else to make the testing any easier. I think that a review of each chapter quiz would help and make sure they understand the answers. It would help to tie the lab projects into the book chapters which would make them use mechanical parts that were described in the book. There is a need to purchase more lab equipment so the number of students per lab project stay at 2 or 3. Because of the small number of students, the effect of two students "messing up" makes the results worst, with a larger classes this would help give us a better picture.

Assessment Committee Recommendation/Approval **(To be posted by Assessment Committee Chair)**
✠ Approved as presented **Date: 09/09/15**

LOT Recommendation/Approval **(To be posted by Assessment Committee Chair)**
❾ Approved as presented **Date: 09/21/15**