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A Study to Determine if Students who Receive Satisfactory Grades in the Classroom Portion of the Ford Asset Program will Receive Corresponding Grades in the Co-op Training Phase

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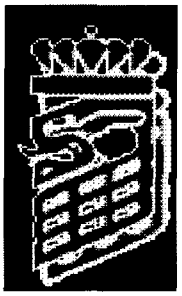

A STUDY TO DETERMINE IF STUDENTS WHO RECEIVE SATISFACTORY GRADES IN THE CLASSROOM PORTION OF THE FORD ASSET PROGRAM WILL RECEIVE CORRESPONDING GRADES IN THE CO-OP TRAINING PHASE

A RESEARCH PROJECT

PRESENTED TO

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APPROVAL PAGE

John R. Cuprisin prepared this research paper under the direction of Dr. John M. Ritz in OTED 636, Problems in Education. It was submitted to the Graduate Program Director as partial fulfillment of the requirements for the degree of Master of Science in Education.

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John R. Cuprisin

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CHAPTER I

INTRODUCTION

Ford Motor Company initiated the ASSET Program in 1985. It was a response to the projected shortage of entry-level automotive technicians. Due to the demand from local Ford and Lincoln-Mercury dealers, the Thomas Nelson Community College ASSET program started in 1992 to serve Southeastern Virginia. There are 65 programs nationwide serving the 50 states.

The ASSET Program is a two-year Community College Co-operative Education program that provides on-the-job training. Students alternate between 8-10 weeks of classroom instruction followed by 8-10 weeks of paid co-op training at a sponsoring Ford or Lincoln-Mercury dealership. During co-op training, students are placed with a mentor technician or with a team of technicians. Students are assigned tasks to complement their classroom instruction.

Graduates of the program earn an Associate in Applied Science (AAS) degree from Thomas Nelson Community College. Ford Motor Company certifies them in eight technical specialty areas under the umbrella of its Service Technician Specialty Training (STST) certificate program. Graduates are trained entry-level automotive technicians employable at Ford and Lincoln-Mercury dealer service departments.

The Thomas Nelson Community College ASSET curriculum is based upon Ford Motor Company's STST certificate curriculum. STST training and certification is in-service instruction designed to certify current Ford and Lincoln-Mercury technicians. The STST certification conferred upon graduates is an incentive for dealers to sponsor a student for two years. This study will be used

to evaluate the training received by students in the Ford ASSET Automotive training program at Thomas Nelson Community College.

STATEMENT OF THE PROBLEM

The problem of this study was to determine the effectiveness of the training received by automotive students in the Ford ASSET Program based upon evaluation of the classroom instruction and the hands-on tasks performed by the students at their sponsoring dealership.

RESEARCH GOALS

H_1: Students who receive satisfactory grades in the classroom portion of the Ford ASSET Program will receive corresponding grades in the co-op training phase.

BACKGROUND AND SIGNIFICANCE

To justify the existence of expensive vocational programs, student outcomes are critical. One driving force in the Community College is graduate numbers. Graduate numbers depend upon trained entry-level graduates to supply the needs of dealership service departments. Without the dealer base to hire graduates, there is no need for the ASSET Program.

Technological changes in the automotive industry take place yearly. It is vital that ASSET students receive training that remains timely and relevant in terms of content and student quality. The co-op portion of the training provides feedback each semester to gauge the progress of the student.

It is important to monitor the outcomes of the training in order to correct any deficiencies. In a study conducted at Ford Motor Company in 1992 it was determined that there was a need to continue the ASSET Program. The

conclusion reached was that the program was successful to that point. It concluded that dealers found the program to be a good source of qualified entry-level technicians. But this conclusion is based more upon anecdotal responses by service managers than by examining individual student academic records. In fact, dealer evaluation of a student's progress and potential is based solely on the co-op portion of training. The majority of dealers do not know the academic record of their students. Because of the commitment in time and money by the dealers, most students who graduate from the ASSET Program are hired as full time technicians upon graduation. Nationwide, the ASSET Program has approximately a 70% graduation rate. How many of these graduates remain employed after a year or longer has not been examined.

Because of this record it would be easy to conclude that simply because a student graduates from the ASSET Program, it is meeting the needs of the dealers. By examining individual student performance it is expected that a clearer picture will emerge of the relationship between classroom progress and job performance.

LIMITATIONS

The following limitations apply to this study:

1. The study will take place during the Spring Semester, January-May, 1998. This will include the classroom instruction phase of training and the co-op training session.

2. The study will include 18 students placed at 8 Ford Dealerships, 1 Lincoln-Mercury Dealership, and 1 Ford/Lincoln-Mercury Dealership.

3. Co-op job performance was determined on the basis of a co-op evaluation instrument developed by Ford Motor Company and modified by the ASSET Advisory Committee.

ASSUMPTIONS

It is assumed in this study that:

1. There is little control over the amount or type of repairs that come to a particular dealership.

2. It is possible that a student will have minimal or no contact with the subject matter most recently covered in the classroom.

3. The size and management style of each dealership is different.

4. Based upon past experience, the most successful co-op students were not the academic high achievers.

PROCEDURES

Evaluation of classroom training is a combination of objective take-home tests and computer based interactive Video Disc and CD-ROM based lessons. Hands-on testing consists of automotive component identification, adjusting components or systems, disassemble/reassemble components, and explaining the operation of automotive components or systems using the correct terminology as agreed upon by the current texts and as discussed in class.

The co-op evaluation will be subjective, although student evaluation will be recorded on a standardized form developed by Ford Motor Company and modified by the ASSET Advisory Committee. The mentor or team leader will complete the evaluation form. Task Lists are provided to guide the mentor on repair tasks to be assigned and evaluated.

The academic grades will be compared to the co-op evaluation to determine if students who receive satisfactory grades in class will receive corresponding grades during their co-op training.

DEFINITION OF TERMS

The following terms are used in this study:

1. Ford ASSET-*Automotive Student Service Educational Training Program*. A Ford Motor Company designed program to train entry-level automotive technicians for Ford and Lincoln-Mercury automotive service departments.

2. FMT-*Ford Multimedia Training*. Training program consisting of self-study VHS video tape and written post-test questions. Interactive Video Disc and CD-ROM based training sessions are a prerequisite to hands-on training session.

3. Sponsoring dealership-The Ford or Lincoln-Mercury automotive service department providing on-the-job training for Ford ASSET students.

4. Co-operative Education (co-op)-The on-the-job training portion of the ASSET Program.

5. Task List-An outline of tasks that the student should be able to perform after each classroom training session. A checklist is provided on the Task List to rate competence for each task.

6. ASSET Advisory Committee-A body consisting of representatives from four sponsoring dealerships, the ASSET Instructor, and one student representative.

OVERVIEW OF CHAPTERS

With the ASSET Program, Ford Motor Company has committed itself to training entry-level technicians to service its customers complex vehicles. Chapter I was an introduction to the ASSET Program and its operation. It also served as an introduction to the components of the study to be conducted. In the following chapters, a review of the literature related to the study will be presented as well as the methods and procedures used to conduct the study. Finally, analysis of data, summary and conclusions will be discussed.

CHAPTER II

REVIEW OF LITERATURE

Although co-operative education is an idea that many agree to be an effective method of training students for employment, most of the discussion centers around the anecdotal experiences of each participant. In an effort to separate the fact from the illusion, the problem of this study was to determine if students who receive satisfactory grades in the classroom will receive corresponding grades during their co-op training. This chapter will describe the training program in which ASSET students and employers participate and examine the literature that is available on apprenticeship and co-operative training programs.

THE FORD ASSET PROGRAM

The Ford ASSET Program is a partnership between Ford Motor Company, Ford and Lincoln-Mercury dealers and Thomas Nelson Community College. It is designed to develop entry-level service technicians and provide a two-year work study experience that leads to an Associate Degree in Automotive Technology. The two-year program is divided into two parts. Students participate in 8-10 weeks of classroom instruction, alternated with 8-10 weeks of full-time paid work experience at a sponsoring Ford or Lincoln-Mercury dealership. It allows the student to become familiar with the dealership environment, while applying and reinforcing what has been covered in the classroom.

The ASSET curriculum includes technical training on current model Ford and Lincoln-Mercury vehicles and components. A combined emphasis is placed upon basic fundamentals of automotive systems and upon the latest developments in engine control systems, brakes, steering and suspension

systems, automatic and manual transmissions, fuel and emission control systems.

To provide the background necessary for effective communication of ideas and to increase opportunities for career advancement, students study academic subjects such as math, English and social science.

CO-OPERATIVE EDUCATION

There is a considerable amount of literature dealing with the effectiveness and usefulness of co-operative education programs, and of the benefits to the students enrolled in such programs. In Co-operative Education: Characteristics and Effectiveness, the author (Kerka, 1997) highlights many of the obvious benefits of co-operative education. Among them are increased relevance of learning and motivation for study, improved self-reliance, self-confidence, and responsibility.

Automotive manufacturer training programs are held up as examples of sources of qualified entry-level technicians. Cantor (1991) states that the domestic and import auto industries have successfully adopted co-operative apprenticeships with Community Colleges. General Motors, Ford, Toyota, Chrysler and Nissan are among the successful examples listed. Each has designed a co-operative education program in conjunction with a Community College. Another article (Filipczak, 1993) labels the mechanics of tomorrow as high-tech car doctors. The implication being that an educated person will be able to outperform someone who has not received training through a co-operative education program.

Filipczak (1993) also states that there is an abundance of literature dealing with employer satisfaction with the students enrolled in, and graduates of, co-operative education programs. Much of the employer satisfaction that is

referenced, based upon personal observation, may be related to a continuing positive experience with a successful student rather than the distant memory of a student who did not perform well and for various reasons dropped out of the program. (Kerka, 1997). Catonsville Community College (Marrow and McLaughlin, 1995) boasts a 100% placement rate of its graduates of its Ford and General Motors programs, although no data is presented on the number of students who dropped out before graduating.

Pucel, (1979) in related literature, recommends conducting longitudinal or cross sectional studies to determine the relationship between student grades and job performance. But the literature that directly compares student academic grades to co-op grades in automotive programs in particular and vocational classes in general is limited.

In a graduate study, Slade (1980) concluded that contrary to what one might expect in a co-operative education program, there appeared to be no correlation between grade point average and job performance. Logical considerations were included in an attempt to explain why the expected conclusion was not reached. For example, the manner in which grade point averages were computed may have affected the results. Or perhaps, the fact that the evaluation forms from employers were not a controlled variable.

Another researcher (Capelli, 1992) was more blunt. In College and the Workplace: How Should We Assess Student Performance?, he stated that college grades are poor predictors of future job performance and that this has been the case for decades. He hypothesizes that college performance is either irrelevant to performance in the workplace, or that college performance is relevant but grades are not a relevant indicator. He states that a more important issue is assessment; since course grades cannot measure many of the work-

relevant skills that college provides, a better method of testing needs to be used to identify characteristics of students that will predict job success.

Slade (1980) seems to reach a similar conclusion: classroom performance may indeed be a predictor of job success but other characteristics of the student may have been stronger. For example, a poor academic student may have some other motivation to do well on the job. Both Slade (1980) and Capelli (1992) make us consider the possibility that grades do not accurately measure what a student knows.

On the other hand, in another study Provenzano (1990) states that the literature is clear on the subject. There is a correlation among basic skills, automotive classroom performance, and success on the job as an automotive technician. But in a critique of his source quotes, Provenzano (1990) notes that the correlation is based upon leading industry experts stating that what is needed is a solid background in basic skills. This is an obvious statement, similar to the researcher's observation noted above rather than an examination of any data. The leap from that statement to success on the job is unclear from the report.

SUMMARY

What is clear are two things. First, there is a need for further research into the relationship between classroom performance and job performance. Second, it needs to be determined if different assessment methods of automotive students will reveal which qualities will indicate job performance or if there is relevance in the instruction.

CHAPTER III

METHODS AND PROCEDURES

In order to determine whether student performance during co-op training can be predicted by classroom performance, it will be necessary to compare classroom grades with job assessment. In this chapter the population, research variables, instrument design, methods for collecting data and the procedures for analyzing data will be presented.

POPULATION

The population of this study consists of 18 Ford ASSET students enrolled at Thomas Nelson Community College. Students are completing their co-op requirements at 10 participating Ford and Lincoln-Mercury dealerships. The dealerships are located in Richmond, Hampton, Newport News, Suffolk, Chesapeake, Norfolk, and Virginia Beach.

RESEARCH VARIABLES

The researcher will study the population of ASSET students to determine if those who receive satisfactory grades in the classroom will receive corresponding grades during the co-op training. Given the limited population and the time frame for instruction, it will be impossible for a single instructor to have a control group. This quasi-experimental study will compare the population as a whole between two learning situations: 8-week classroom learning compared to the 8-week co-op session.

INSTRUMENT DESIGN

Student grades are recorded and tabulated for all assignments, tests, labs, etc. All grades are competency based. Computer based training data is stored on the computer for later retrieval.

The following forms are used during the co-op:

1. A Student Evaluation form is used to determine the co-op grade. The items on the Student Evaluation consist of questions regarding quality of work, personal habits, attitude, judgement, initiative, and productivity. Answers are recorded on a Likert Scale: 1 is unsatisfactory and 5 is excellent. There is also space for an open-ended response by the supervisor and the student. A sample of the instrument is found in Appendix A.

2. A Task List is used as a competency checklist in the subject covered prior to the co-op. It is also used as a guide for dealerships to assign work and keep track of completed student tasks during the co-op. A sample of the instrument is found in Appendix B.

3. A Dealer Visitation Summary is completed after each visit. A sample of the instrument is found in Appendix C.

METHODS FOR COLLECTING DATA

Two weeks prior to the co-op session each student and each dealership is provided with a Task List. The ASSET Instructor makes three visits to the sponsoring dealership during the co-op period. The first visit is informal; an opportunity to make sure the student and the dealership have settled back into the co-op routine. During the second visit the dealership supervisor is provided with the Student Evaluation form to review prior to the final visit. During each visit the ASSET Instructor also speaks with co-workers as well as supervisors and records notes on a Dealer Visitation Summary. During the last week of the co-op

training a formal visit is scheduled to discuss the student's progress and review the completed Student Evaluation form.

ANALYSIS OF DATA

During the evaluation visit to each dealership the student's progress during that co-op session is discussed. The supervisor completes or has completed the Student Evaluation form. Any open-ended responses are discussed and the supervisor suggests a letter grade. In most cases it is a highly subjective response. In some cases the dealership tracks student productivity and suggests a letter grade. The grade is noted on the Student Evaluation form.

The ASSET Instructor determines the final letter grade for the co-op. In many cases it is subjective, based upon the Dealer Visitation Summary, the Student Evaluation form, and informal discussion with mentor technicians. Pearson's r will be used to determine if a relationship exists between classroom grades and co-op grades.

SUMMARY

Chapter III presented the methods and procedures that were used to obtain the necessary data for this study. The study is quasi-experimental in that there was not a control group to compare. Also, much of the data is subjective in nature but every attempt to be unbiased in the evaluation has been made. None of the participants of the study were made aware that they were part of a research project. The findings of this study will be presented in the following chapter.

CHAPTER IV

FINDINGS

The problem of this study was to compare the grades received by the students during the classroom training session and the hands-on training session. In this way the study will try to determine if a student's hands-on co-op performance can be predicted by classroom grades. This chapter will include the findings of the study and an explanation of the format of the data presented.

DATA COLLECTED

The data presented in this chapter was collected from the researcher's normal grading practices. Table 1 is a list of grades for the Spring 1998 semester. The 18 ASSET students have been randomly listed from letter A through Q. Letter grades have been assigned a number: A=4, B=3, C=2, D=1. The grade F was not received by any student.

STATISTICAL ANALYSIS

After the data was compiled the Pearson's product moment correlation was applied. The data was entered into the STATDISK® statistics program and evaluated. The result was a positive correlation coefficient of .9618. The statistical significance of this result was determined by comparing the value of Pearson's r with the .05 and .01 values found in Statistics for the behavior sciences, 4th Ed. by Gravetter & Wallnau.

TABLE 1:

STUDENT LECTURE AND CO-OP GRADES

Student ID	Lecture Grade	Co-op Grade
A	4	4
B	4	4
C	2	2
D	4	4
E	3	3
F	4	4
G	4	4
H	4	4
I	1	1
J	4	4
K	4	4
L	4	4
M	4	4
N	4	4
O	4	4
P	4	4
Q	3	3
R	3	4

SUMMARY

This chapter reported the findings of the study with the data presented. Table 1 showed the classroom and co-op grades for the ASSET students during the Spring 1998 semester. The information presented will be interpreted in Chapter V, along with the conclusions and recommendations of the study.

CHAPTER V

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

The purpose of this chapter was to summarize and make conclusions from the data presented in this research report. A section will be devoted to each so the researcher may draw conclusions and make recommendations for further study of the ASSET program.

SUMMARY

It is important to monitor the outcomes of training in order to correct any deficiencies. In a study conducted at Ford Motor Company in 1992 it was determined that there was a need to continue the ASSET Program. The conclusion reached was that the program was successful to that point. It concluded that dealers found the program to be a good source of qualified entry-level technicians. Because of this record it would be easy to conclude that simply because a student graduates from the ASSET Program, it is meeting the needs of the dealers. By examining individual student performance it is expected that a clearer picture will emerge of the relationship between classroom progress and job performance.

The study will take place at Thomas Nelson Community College using participating Ford and Lincoln-Mercury dealers during the Spring Semester, January-May, 1998. This included the classroom instruction phase of training and the co-op training session. The study included 18 students placed at 8 Ford Dealerships, 1 Lincoln-Mercury Dealership, and 1 Ford/Lincoln-Mercury Dealership.

Co-op job performance was determined on the basis of a co-op evaluation instrument developed by Ford Motor Company and the ASSET Advisory Committee.

Evaluation of classroom training is a combination of objective take-home tests and computer based interactive Video Disc and CD-ROM based lessons. Hands-on testing consists of automotive component identification, adjusting components or systems, disassemble/reassemble components, and explaining the operation of automotive components or systems using the correct terminology as agreed upon by the current text and discussed in class.

The co-op evaluation will be subjective, although student evaluation will be recorded on a standardized form developed by Ford Motor Company and modified by the ASSET Advisory Committee. The mentor or team leader will complete the evaluation form. Task Lists are provided to guide the mentor on repair tasks to be assigned and evaluated.

The study will try to determine if a relationship exists between grades received for classroom and co-op sessions. The following hypothesis was used in the study:

H_1: **Students who receive satisfactory grades in the classroom portion of the Ford ASSET Program will receive corresponding grades in the co-op training phase.**

Pearson's r will be used to determine if a correlation exists between grades the students receive in class and corresponding grades received during their co-op training.

CONCLUSIONS

Pearson's r indicates that the sample provides evidence that the populations are correlated. An analysis of the student data indicates that none of the students received the grade of F. Therefore, strictly speaking, all of the students received a satisfactory grade for the lecture and co-op training. Further analysis indicates that 17 of the 18 students received corresponding grades for the lecture session and the co-op session. Only one student received a higher grade for the co-op than the lecture.

The study will try to determine if a meaningful relationship exists between lecture grades and co-op grades. In conclusion, the hypothesis shown below has been tested. An analysis of the data shows a strong positive correlation.

H_1: Based upon the research objective, students who received satisfactory grades in the classroom portion of the Ford ASSET Program received corresponding grades in the co-op training phase.

The statistics program STATDISK® was used to calculate r for the data in Table 1. The result was a positive correlation coefficient of +0.96182. Using the level of significance table for a one-tailed test the data exceeds .400 at the .05 level and .542 at the .01 level. According to the table for the level of magnitude for 0.96182 there is a very high correlation between student's classroom grades and co-op performance as indicated by the value .542 at the .01 level of significance. Therefore the researcher accepts the hypothesis that students who receive satisfactory grades in the classroom portion of the Ford ASSET program will receive corresponding grades in the coop training phase of their program.

RECOMMENDATIONS

The study was conducted as a comparison between classroom and co-op training without a control group. The results are based upon a small population. The literature on grades as predictors of success in the field are inconclusive, given that findings range from a strong correlation between grades and work success to a strong opinion that grades are a poor predictor of work success.

The opportunity for further study has presented itself. The Thomas Nelson/Ford ASSET Program will have two separate sessions beginning in the Fall 1998 semester. A second program will operate in the Richmond area with an adjunct faculty member teaching that group. It is recommended that a longitudinal study be conducted on the two Ford ASSET classes to determine if there is a true correlation between satisfactory grades in the class and satisfactory grades during the co-op session.

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APPENDICES

1. Appendix A: Student Evaluation.
2. Appendix B: ASSET Co-op Task List.
3. Appendix C: ASSET Program Dealer Visitation Summary.

APPENDIX A

STUDENT EVALUATION: _____ **Date:** _____

Place a check in the box which best describes the student's effort in the following categories:

	Unsatisfactory	Below Average	Average	Above Average	Excellent
	1	2	3	4	5
Quality of Work: Consults manuals, uses proper tools, treats customer's car as his own, shows genuine concern for quality.	☐	☐	☐	☐	☐
Personal Habits: Attendance, punctuality, appearance, cleanliness of work area, care of tools/equipment	☐	☐	☐	☐	☐
Attitude: Co-operative, takes positive approach, assists others, takes pride in work.	☐	☐	☐	☐	☐
Judgement: Knows his own limits, requests help when needed, usually makes the right decisions, handles problems constructively.	☐	☐	☐	☐	☐
Initiative: Does all assigned work, proceeds well on his own, goes ahead independently at times, seeks other work when assignments are complete	☐	☐	☐	☐	☐
Productivity: Efficient work habits, looks for work, keeps busy, puts in a full day, plans work in advance.	☐	☐	☐	☐	☐

REVIEWED WITH STUDENT:

Supervisor Suggestions For Improvement: _____

_____

Student Comments: _____

_____ _____

Student Signature **Supervisor Signature**

ASSET Co-Op Task List

Work Area: Brake Systems

APPENDIX B

Student Name: _____ Dealership: _____

School Name: _____ Dealer Coordinator: _____

Instructor: _____ Lead Technician: _____

****FOLLOW FORD SPECIFICATIONS AND PROCEDURES TO DIAGNOSE AND REPAIR THE ROOT CAUSES OF THE FOLLOWING CONCERNS ****

RATE THE STUDENTS ON THEIR KNOWLEDGE AND SKILL IN THE FOLLOWING AREAS :	LEVEL OF PERFORMANCE SATIS.	NEEDS FURTHER INSTRUCT./ UNSATIS.	WORK NOT AVAIL.
1. Verifies the concern prior to repair	☐	☐	☐
2. Routinely checks OASIS	☐	☐	☐
3. References TSB's as part of routine procedure	☐	☐	☐
4. Use of Electrical and Vacuum Troubleshooting Manuals	☐	☐	☐
STANDARD HYDRAULIC BRAKE SYSTEM			
5. Operation, diagnosis and repair of a standard brake system	☐	☐	☐
6. Individual component function (master cyl., caliper, wheel cyl., etc.)	☐	☐	☐
7. Diagnosing vacuum booster related concerns	☐	☐	☐
8. Diagnosing brake noise concerns	☐	☐	☐
9. Diagnosing parking brake concerns	☐	☐	☐
LIGHT TRUCK REAR ANTI-LOCK SYSTEM			
10. Differentiating between standard-brake and anti-lock system concerns	☐	☐	☐
11. Knowledge and skill in the following areas:			
- Performing self test	☐	☐	☐
- Interpreting self test codes	☐	☐	☐
- Following pinpoint test procedures	☐	☐	☐
- Performing repairs on the vehicle	☐	☐	☐
FOUR-WHEEL ANTI-LOCK SYSTEMS			
12. Differentiating between standard-brake and anti-lock system concerns	☐	☐	☐
13. Operation, diagnosis and repair of the following anti-lock systems:			
- Integrated system (Mark VII, Continental, T-Bird/Cougar Mark VIII)	☐	☐	☐
- Nonintegrated system (Town Car, Crown Vic./Grand Marquis, Taurus/Sable)	☐	☐	☐
- Mazda system (Probe GT)	☐	☐	☐
14. Diagnosing concerns that don't generate a self-test code	☐	☐	☐

ASSET Co-Op Task List
Work Area: Brake Systems

Student Name: _____ Dealership: _____

School Name: _____ Dealer Coordinator: _____

Instructor: _____ Lead Technician: _____

****FOLLOW FORD SPECIFICATIONS AND PROCEDURES TO DIAGNOSE AND REPAIR THE ROOT CAUSES OF THE FOLLOWING CONCERNS ****

RATE THE STUDENTS ON THEIR KNOWLEDGE AND SKILL IN THE FOLLOWING AREAS :	LEVEL OF PERFORMANCE SATIS.	NEEDS FURTHER INSTRUCT./ UNSATIS.	WORK NOT AVAIL.
UNIQUE SYSTEMS AND COMPONENTS			
15. Basic understanding of traction assist operation	☐	☐	☐
16. Basic understanding of height-sensing, proportioning valve operation (E-250/350 and F-Super Duty only)	☐	☐	☐
17. Basic understanding of Hydro-Boost system operation (F-Super Duty only)	☐	☐	☐
18. Diagnosing vacuum parking-brake release concerns	☐	☐	☐

Comments: _____

ASSET Co-Op Task List

Work Area: Manual Transmission and Driveline

Student Name: _____ Dealership: _____

School Name: _____ Dealer Coordinator: _____

Instructor: _____ Lead Technician: _____

****FOLLOW FORD SPECIFICATIONS AND PROCEDURES TO DIAGNOSE AND REPAIR THE ROOT CAUSES OF THE FOLLOWING CONCERNS ****

RATE THE STUDENTS ON THEIR KNOWLEDGE AND SKILL IN THE FOLLOWING AREAS :	LEVEL OF PERFORMANCE SATIS.	NEEDS FURTHER INSTRUCT./ UNSATIS.	WORK NOT AVAIL.
GENERAL DIAGNOSTICS			
1. Verifies the concern prior to repair	☐	☐	☐
2. Performing a road test to determine root cause of a concern	☐	☐	☐
3. Routinely checks OASIS	☐	☐	☐
4. References TSB's as part of routine procedure	☐	☐	☐
5. Use of shop manuals	☐	☐	☐
6. Interpreting transmission id. tag information	☐	☐	☐
7. Determining correct transmission fluid type and capacity	☐	☐	☐
8. Interpreting specification charts	☐	☐	☐
9. Torquing procedures for transmission assembly	☐	☐	☐
10. Making end play and clearance measurements	☐	☐	☐
11. Operations, diagnosis and repair of the following transmissions:			
- MTX and MTX III	☐	☐	☐
- F5M-R and G5M-R	☐	☐	☐
- M5R2	☐	☐	☐
- T5OD	☐	☐	☐
DRIVELINE DIAGNOSIS AND REPAIR			
12. Operations and repair of the following:			
- Front-wheel drive differential	☐	☐	☐
- Rear-wheel drive standard differential	☐	☐	☐
- Rear-wheel drive limited slip differential	☐	☐	☐
- Manual transfer case	☐	☐	☐
- Electronic transfer case	☐	☐	☐
- Manual locking hubs	☐	☐	☐
- Automatic locking hubs	☐	☐	☐
13. Half shaft and CV joint operations, diagnosis and repair	☐	☐	☐
14. U-joint operation, diagnosis and repair	☐	☐	☐
15. Indexing a driveshaft	☐	☐	☐

ASSET Co-Op Task List

Work Area: Manual Transmission and Driveline

Student Name: _____ Dealership: _____

School Name: _____ Dealer Coordinator: _____

Instructor: _____ Lead Technician: _____

****FOLLOW FORD SPECIFICATIONS AND PROCEDURES TO DIAGNOSE AND REPAIR THE ROOT CAUSES OF THE FOLLOWING CONCERNS ****

RATE THE STUDENTS ON THEIR KNOWLEDGE AND SKILL IN THE FOLLOWING AREAS :	LEVEL OF PERFORMANCE SATIS.	NEEDS FURTHER INSTRUCT./ UNSATIS.	WORK NOT AVAIL.
16. Measuring and adjusting the following:			
- Pinion depth	☐	☐	☐
- Ring and pinion backlash	☐	☐	☐
- Ring gear runout	☐	☐	☐
- Companion flange runout	☐	☐	☐
- Single-driveshaft driveline and pinion angles	☐	☐	☐
- Two-piece driveshaft driveline and pinion angles	☐	☐	☐
- Axle shaft end play	☐	☐	☐
- Axle flange runout	☐	☐	☐
- Wheel and tire lateral and radial runout	☐	☐	☐
- Wheel stud-center runout	☐	☐	☐
17. Operations, diagnosis and repair of the following:			
- Clutch, pressure plate and release bearing	☐	☐	☐
- Mechanical linkage systems	☐	☐	☐
- Hydraulic release systems	☐	☐	☐
18. Measurement/adjustment of the following:			
- Clutch release clearance	☐	☐	☐
- Mechanical linkage travel	☐	☐	☐
- Hydraulic release system travel	☐	☐	☐

Comments: _____

_____

_____

_____

APPENDIX C

ASSET PROGRAM
DEALER VISITATION SUMMARY

District: _____ School: _____ Instructor:_____

Date of Visit _____ Visit # 1 2 3 Semester #: _____ Class #: ___

(Circle One)

Dealership: _____Dealer Principal: _____ Service Manager: _____

Student(s) _____ List Automotive Courses Completed

previous semester _____

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1. Are student(s) being assigned to work areas most recently covered in classroom session? YES NO

   If not, explain _____

   _____

2. Are student(s) working with an assigned master technician? YES NO

   If not, explain _____

   _____

3. Have student(s) received appropriate wage increases per semester? YES NO

   If not, explain _____

   _____

4. Are student(s) completing the daily ASSET journal? YES NO

   If not, explain _____

   _____

Instructor Signature: _____ **Date:** _____

Comments: _____

_____

_____