I. INTRODUCTION

A. Fundamentals of hydraulics including components and related systems.

B. Basic Hydraulics (DEMR 1416) is a required course for the completion of a two year Associate of Applied Science degree in Diesel Engine Mechanic and Repairer or a Level I or Level II certificate of completion in the Diesel Technician Program.

C. This course is occupationally related and serves as a preparation for a career in the Diesel Service and Repair field.

D. Prerequisites: This course has a prerequisite or corequisite (AAS Degree) of DEMR 1401 or consent of the Department Chair.

E. Alphanumeric coding used throughout this module book denotes integration of SCANS occupational competencies (C1, etc.) and Foundation skills (F1, etc.).

II. LEARNING OUTCOMES

Upon successful completion of this course, Shop Safety and Procedures, the student will:

A. Understand hydraulics theory, circuits and application. (C19)
B. Identify various components used in Hydraulic systems. (C18)
C. Use a computer. (C8)
D. Describe the characteristics, operating conditions and maintenance considerations for petroleum based and fire retardant fluids. (C7)
E. Use graphic symbols in a hydraulic schematic. (C19)
F. Use mathematical expressions to describe the capability of hydraulic actuators. (F3, F4)
G. Evaluate hydraulic components by inspection and testing. (C20)
H. Fabricate Hydraulic hoses. (C20)
I. Use service publications. (C18)
J. Use tools and equipment. (C18)
K. Practice shop safety. (C19)
III. INSTRUCTIONAL MATERIALS

A. Instructional materials for this course may be found at www.ctcd.edu/books

B. Supplemental Reading: As assigned by the instructor.

C. Audio-visual aids: See resource list at end of this module book.

D. Other instructional material: as selected by the instructor.

IV. COURSE REQUIREMENTS

A. This course is being taught in a self-paced mode. It differs from the traditional college course in that you are allowed to work on your own and at your own speed within limitation. This course is 96 clock hours in length. The student may set his/her own schedule within the time frame the course is offered. You must attend class on the days and at the times you selected when you enrolled in the course.

You will have an assigned instructor. If at any time you do not understand a reading assignment, audio visual presentation or lab work, ask your instructor for assistance. He is there for you!

This module book is designed to inform you of the sequence in which this course will be presented. You must follow this sequence and you must do what the module book says. It contains reading assignments, written assignments, audio visual presentations and lab assignments that you must complete or watch. Written assignments will be turned in as directed by the instructor. Late assignments will not be accepted. You must let your instructor know when you are ready to do a learning activity, performance exam or take a scheduled exam.

B. The student must take notes when viewing DVD’s, CD’s, or videos. Exams may be taken from audio visual aids, reading and lab assignments. If instructor notes or handouts are given to you, you must study them, exams may be taken from these notes also.

C. The instructor may give written assignments or “pop” quizzes as he deems necessary.

D. Performance Exams:

Each student will clean all tools and equipment that they use and properly store them and clean their work area after the completion of each task.
Laboratory tasks (performance exam) will be completed on an individual basis except when limited by tools and/or materials. The maximum lab grade is 500 points. The instructor will deduct points from each lab task score for failure to follow safety precautions and/or a failure to complete the project to industry standards. The instructor will date, initial, and post the points earned for each performance exam as it is completed.

E. The following is part of the course requirements: Each student will assist in lab clean-up at the close of the evening classes and will assist in unloading and storing supply shipments. Failure to do so will result in a failure to complete all course requirements and the student could receive an “F” for the course.

F. There will be eleven (11) written examinations in this course (10 module/unit exams and an exit exam). **Written exams must be completed before taking the performance exam for each module.** Written exams will consist of 1 hour time testing using all resource materials, IE, notes and books. The exit exam is a comprehensive exam that covers the entire course. No resource materials will be allowed.

G. The student must complete the written assignments to receive a grade. **Written assignments for each unit will be turned into the instructor prior to starting performance exams for that module.** Degree students must complete reading and written assignments at home or in the LRC.

**GRADING**

All Students will be graded using an "alpha-numeric" system as outlined below. Grades made on performance and written exams will be the grade received, including the exit exam. **Students will not be allowed to retake written exams or redo performance exams.**

A. Written exams: Average of written exams will count 10% of the final grade.

B. Exit Exams will count 20% of the students’ final grade.

C. Performance Exams (Lab work) will count 70% of the final grade.

D. Grade Computations: (Example)  
   Written Exam Scores: (There will be 9 written exams)  
   Exam 1  90  
   Exam 2  80  
   Exam 3  70  
   240 divided by 3 = 80 (Average Written Exams)  

   Written Exit Exams  100 x 20% = 200 points
Written Module Exams $100 \times 10\% = 100$ points
Practical/Performance Exam Score $100 \times 70\% = 700$ points

Total $= 1000$ points $= A$

V. NOTES AND ADDITIONAL INSTRUCTIONS FROM THE COURSE INSTRUCTOR

A. **Course Withdrawal:** It is the student’s responsibility to officially withdraw from a course if circumstances prevent attendance. Any student who desires to, or must, officially withdraw from a course after the first scheduled class meeting must file a Central Texas College Application for Withdrawal (CTC Form 59). The withdrawal form must be signed by the student.

A student who officially withdraws will be awarded the grade of “W” provided the student’s attendance and academic performance are satisfactory at the time of official withdrawal. Students must file a withdrawal application with the College before they may be considered for withdrawal.

A student may not withdraw from a class for which the instructor has previously issued the student a grade of “F” for nonattendance.

B. **Administrative Withdrawal:** An administrative withdrawal may be initiated when the student fails to meet College attendance requirements. The instructor will assign the appropriate grade on CTC Form 59 for submission to the registrar.

C. **Incomplete Grade:** The College catalog states, “An incomplete grade (‘IP’) may be given in those cases where the student has completed the majority of the coursework but, because of personal illness, death in the immediate family, or military orders, the student is unable to complete the requirements for a course. Prior approval from the instructor is required before the grade of ‘IP’ for Incomplete is recorded. A student who merely fails to show for the final examination will receive a zero for the final and an ‘F’ for the course.

D. **Cellular Phones and Beepers:** Cellular phones and beepers will be turned off while the student is in the classroom or laboratory.

E. **Instructor Discretion:** The instructor reserves the right of final decision in course requirements.

F. **Civility:** Individuals are expected to be cognizant of what a constructive educational experience is and respectful of those participating in a learning environment. Failure to do so can result in disciplinary action up to and including expulsion.
G. Absence from the class may be unavoidable in some situations. These include illness, military/civilian job requirements, or a death in the immediate family. Documentation is required in the case of excused absences for job requirements. Excuses will be on company letterhead stationary signed by the immediate supervisor stating the reason for the absence for civilian jobs. Excuses for military personnel must be signed by the 1st Sergeant or the Company Commander. NOTE: This does not apply to VA, VA/Voc, or Financial Aid students. There are no excused absences for these students. Talk to your funding agency if you have questions.

VI. NOTES SECTION
Disability Support Services provides services to students who have appropriate documentation of a disability. Students requiring accommodations for class are responsible for contacting the Office of Disability Support Services (DSS) located on the central campus. This service is available to all students, regardless of location. Review the website at www.ctcd.edu/disability-support for further information. Reasonable accommodations will be given in accordance with the federal and state laws through the DSS office.
VI. FIRST CLASS MEETING

A. The instructor will introduce the course and show the student the textbook.

B. The instructor will verify the class roster/enrollment form:

C. The instructor will have the student read and sign the course requirements sheet.

D. The instructor will discuss the following topics with the student:

1. Course requirements, objectives and how the course works
2. Policy letters
3. Student handouts
4. Laboratory Learning Activities and lab work (Learning Activities, Performance exams, competency profile)
5. Exam, grading, reading and written assignments.
6. Absences
7. Shop/classroom cleanup–tools
8. Dress code
9. Parking
10. Sign-in computer
11. Course outline/fact sheets/student handouts
12. Hazardous communications/MSDS information
13. Shop safety
COURSE OUTLINE OR SEQUENCE

I. Module 1416-01: Introduction to Hydraulics

A. Time: 15 Hours

B. Module Learning Outcomes: Upon completion of this module the student will:

1. Understand hydraulics theory, circuits, and applications. (C19)
2. Identify various components used in hydraulic systems. (C18)
3. Use mathematical expressions to describe the capability of hydraulic actuators. (F3, F4)
4. Use a computer. (C8)
5. Use tools and equipment. (C18)
6. Practice shop safety. (C19)

C. Read Chapter 1 in Resource 1416-01. (Textbook)

D. Read Chapter 2 in Resource 1416-01. (Textbook)

E. Read Fact Sheet 1416-01-02.

F. Read Fact Sheet 1416-01-03.

G. Read Fact Sheet 1416-01-04.

H. Read Fact Sheet 1416-01-05.

I. See your instructor and ask him to explain any part of the reading assignment you do not understand.

J. View Audio Visals: (See your Instructor)

1. View Resource 1416-03 Module 1 on Introduction to Hydraulics. NOTE!! Refer to FACT SHEET 1416-01-01 for instructions on the operation of this program.

K. See your instructor and ask him if there is any other information that you should view or read that pertains to this module.

L. Refer to the Laboratory Learning Activities (Lab Sheet) in this module book and complete the Learning Activities for this module (See your Instructor).

M. Review for Module 1416-01 Written Exam: Study all previous assignments in this module. See your instructor and ask him to explain any area that you do not understand.
N. Module 1416-01 Written Exam: (See your Instructor)

O. Critique Module 1416-01 Written Exam: (See your Instructor)

P. Performance Exam 1416-01: Refer to the Laboratory Learning Activities (Lab Sheet) in this module book and complete the performance exam for this module. (See your Instructor)

Q. Students should complete this module by the end of the 15th clock hour.

II. Module 1416-02: Hydraulic Fluids

A. Time: 10 Hours

B. Module Learning Outcomes: Upon completion of this module the student will:

1. Describe the characteristics, operating conditions and maintenance considerations for petroleum based and fire retardant hydraulic fluids. (C7)
2. Use a computer. (C8)
3. Use tools and equipment. (C18)
4. Practice shop safety. (C19)

C. Read Chapter 3 in Resource 1416-01. (Textbook)

D. Read Chapter 4 in Resource 1416-01. (Textbook)

E. Read Fact Sheet 1416-02-01.

F. See your Instructor and ask him to explain any part of the reading assignment that you do not understand.

G. View audio visuals: (See your Instructor)
   1. View Resource 1416-03 Module 2 on Introduction to Hydraulic Fluids.

H. See your Instructor and ask him if there is any other information that should be viewed or read that pertains to this module.

I. Refer to the Laboratory Learning Activities (Lab Sheet) in this module book and complete the Learning Activities for this module (See your Instructor).

J. Review for Module 1416-02 Written Exam: Study all previous assignments in this module. See your instructor and ask him to explain any area that you do not understand.

K. Module 1416-02 Written Exam: (See your Instructor)
L. Critique module 1416-02 Written Exam: (See your Instructor)

M. Performance exam 1416-02: Refer to the Laboratory Learning Activities (Lab Sheet) in this module book and complete the Performance Exam for this module (See your Instructor)

N. Students should complete this module by the end of the 25th clock hour.

III. Module 1416-03: Hydraulic Symbols and Circuitry

A. Time: 10 Hours

B. Module Learning Outcomes: Upon completion of this module the student will:

1. Understand hydraulics theory, circuits and application. (C19)
2. Identify various components used in hydraulic systems. (C18)
3. Use graphic symbols in a hydraulic schematic. (C19)
4. Use a computer. (C8)
5. Use tools and equipment. (C18)
6. Practice shop safety. (C19)

C. Read Appendix A in Resource 1416-01. (Textbook)

D. Read Appendix B in Resource 1416-01. (Textbook)

E. See your instructor and ask him to explain any part of the reading assignment that you do not understand.

F. View audio visuals: (See your Instructor)
   1. View Resource 1416-03 Module 8 on Hydraulic Circuitry.
   2. View Resource 1416-03 Module 9 on Symbols.

G. See your instructor and ask him if there is any other information that should be viewed or read that pertains to this module.

H. Refer to the Laboratory Learning Activities (Lab Sheet) in this module book and complete the Learning Activities for this module (See your Instructor).

I. Review for Module 1416-03 Written Exam. Study all previous assignments in this module. See your Instructor and ask him to explain any area that you do not understand.

J. Module 1416-03 Written Exam: (See your Instructor)

K. Critique Module 1416-03 Written Exam: (See your Instructor)
L. Performance Exam 1416-03: Refer to the Laboratory Learning Activities (Lab Sheet) in this module book and compete the Performance Exam for this module (See your Instructor).

M. Students should complete this module by the end of the 35th clock hour.

IV. Module 1416-04: Hydraulic Pumps

A. Time: 10 Hours

B. Module Learning Outcomes: Upon completion of this module the student will:
   1. Identify various components used in hydraulic systems. (C18)
   2. Understand hydraulic theories, circuits and application. (C19)
   3. Use graphic symbols in a hydraulic schematic. (C19)
   4. Use a computer. (C8)
   5. Use tools and equipment. (C18)
   6. Practice shop safety. (C19)

C. Read Chapter 5 in Resource 1416-01. (Textbook)

D. Read Chapter 13 in resource 1416-01. (Textbook)

E. Read Fact Sheet 1416-04-01 on Hydraulic Pumps.

F. See your instructor and ask him to explain any part of the reading assignment that you do not understand.

G. View Audio Visuals: (See your Instructor)

H. See your Instructor and ask him if there is any other information that should be viewed or read that pertains to this module.

I. Refer to the Laboratory Learning Activities (Lab Sheet) in this module book and complete the Learning Activities for this module (See your Instructor).

J. Review for Module 1416-04 Written Exam: Study all previous assignments in this module. See your Instructor and ask him to explain any area that you do not understand.

K. Module 1416-04 Written Exam: (See your Instructor)

L. Critique Module 1416-04 Written Exam: (See your Instructor)
M. Performance Exam Module 1416-04: Refer to the Laboratory Learning Activities (Lab Sheet) in this module book and complete the Performance Exam for this module (See your Instructor).

N. Students should complete this module by the end of the 45th clock hour.

V. Module 1416-05: Control of Hydraulic Energy

A. Time: 20 Hours

B. Module Learning Outcomes: Upon completion of this module the student will:

1. Identify various components in hydraulic systems. (C18)
2. Understand hydraulic theory, circuits and application. (C19)
3. Use graphic symbols in a hydraulic schematic. (C19)
4. Use a computer. (C8)
5. Use tools and equipment. (C18)
6. Practice shop safety. (C19)

C. Read Chapter 7 in Resource 1416-01. (Textbook)

D. Read Chapter 8, pages 8-1 through 8-3 in Resource 1416-01. (Textbook)

E. Read Chapter 9 in Resource 1416-01. (Textbook)

F. Read Chapter 10 in Resource 1416-01. (Textbook)

G. Read Chapter 11 in Resource 1416-01. (Textbook)

H. Read Chapter 12 in Resource 1416-01. (Textbook)

I. Read Fact Sheet 1416-05-01 on “Introduction to Control Valves.”

J. Read Fact Sheet 1416-05-02 on “Pressure Control valves, Directional Control Valves and Flow Control Valves.”

K. See your Instructor and ask him to explain any part of the reading assignment you do not understand.

L. View Audio Visuals: (See your Instructor)

1. View Resource 1416-03 Module 5 on “Control of Hydraulic Energy.”

NOTE: Omit the sections on “Accumulators and Lines and Fittings.”

M. See your instructor and ask him if there is any other information that should be viewed or read that pertains to this module.
N. Refer to the Laboratory Learning Activities (Lab Sheet) in this module book and complete the Learning Activities for this module (See your Instructor).

O. Review for Module 1416-05 Written Exam: Study all previous assignments in this module. See your instructor and ask him to explain any area that you do not understand.

P. Module 1416-05 Written Exam: (See your Instructor)

Q. Critique module 1416-05 Written Exam: (See your Instructor)

R. Performance Exam Module 1416-05: Refer to the Laboratory Learning Activities (Lab Sheet) in this module book and complete the Performance Exam for this module (See your Instructor).

S. Students should complete this module by the end of the 65th clock hour.

VI. Module 1416-06: Hydraulic Actuators

A. Time: 20 Hours

B. Module Learning Outcomes: Upon completion of this module the student will:

1. Identify various components used in hydraulic systems. (C18)
2. Understand hydraulics theory, circuits and applications. (C19)
3. Use graphic symbols in a hydraulic schematic. (C19)
4. Use mathematical expressions to describe the capability of hydraulic actuators. (F3, F4)
5. Use a computer. (C8)
6. Use tools and equipment. (C18)
7. Practice shop safety. (C19)

C. Read Chapter 6 in Resource 1416-01. (Textbook)

D. Read Chapter 8, pages 8-17 through 8-39, in Resource 1416-01. (Textbook)

E. Read Chapter 14 in Resource 1416-01. (Textbook)

F. Read Fact Sheet 1416-05-01 on “Flow and Velocity.”

G. Read Fact Sheet 1416-05-02 on “Linear Actuators.”

H. Read Fact Sheet 1416-05-03 On Rotary Actuators.”

I. Read fact Sheet 1416-05-04 on “Regenerative Circuits.”
J. See your instructor and ask him to explain any part of the reading assignment that you do not understand.

K. Performance Exam module 1416-06: Refer to the Laboratory Learning Activities (Lab Sheet) in this module book and complete the Performance Exam for this module (See your instructor).

L. See your instructor and ask him if there is any other information that should be viewed or read that pertains to this module.

M. Refer to the Laboratory Learning Activities (Lab Sheet) in this module book and complete the Learning Activities for this module (See your Instructor).

N. Review for Module 1416-06 Written Exam: Study all previous assignments in this module. See your instructor and ask him to explain any area that you do not understand.

O. Module 1416-06 Written Exam: (See your Instructor)

P. Critique Module 1416-06 Written Exam: (See your Instructor)

Q. Performance Exam Module 1416-06: Refer to the Laboratory Learning Activities (Lab Sheet) in this module and complete the Performance Exam for this module (See your Instructor).

R. Students should complete this module by the end of the 85th clock hour.

VII. Module 1416-07: Hydraulic Accumulators

A. Time: 10 Hours

B. Module Learning Outcomes: Upon completion of this module the student will:

1. Identify various components used in hydraulic systems. (C18)
2. Understand hydraulic theory, circuits and applications. (C19)
3. Use graphic symbols in a hydraulic schematic. (C19)
4. Use a computer. (C8)
5. Use tools and equipment. (C18)
6. Practice shop safety. (C19)

C. Read Chapter 8, pages 8-3 through 8-17, in Resource 1416-01. (Textbook)

D. Read Fact Sheet 1416-07-01 on “Accumulator Design, Function, Circuits and Applications.
E. See your Instructor and ask him to explain any part of the reading assignment that you do not understand.

F. View Audio Visuals: (See your Instructor)

G. See your Instructor and ask him if there is any other information that should be viewed or read that pertains to this module.

H. Refer to the Laboratory Learning Activities (Lab Sheet) in this module book and complete the Learning Activities for this module (See your Instructor).

I. Review for Module 1416-07 Written Exam: Study all previous assignments in this module. See your instructor and ask him to explain any area that you do not understand.

J. Module 1416-07 Written Exam: (See your Instructor)

K. Critique Module 1416-07 Written Exam: (See your Instructor)

L. Performance Exam Module 1416-07: Refer to the Laboratory Learning Activities (Lab Sheet) in this module book and complete the Performance Exam for this module (See your Instructor)

M. Students should complete this module by the end of the 95th clock hour.

VIII. Module 1416-08: Reservoir, Coolers and Filters

A. Time: 10 Hours

B. Module Learning Outcomes: Upon completion of this module the student will:
   1. Understand hydraulic theory, circuits and applications. (C20)
   2. Use tools and equipment. (C18)
   3. Use a computer. (C8)
   4. Practice shop safety. (C19)

C. Read Chapter 15 in Resource 1416-01. (Textbook)

D. Read Fact Sheet 1416-08-01 on “Fluid Storage and Conditioning.”

E. Read Fact Sheet 1416-08-02 on “Fluid Filtration in Hydraulic Circuits.”

F. See your Instructor and ask him to explain any part of the reading assignment that you do not understand.
G. View Audio Visuals: (See your Instructor)
   1. View Resource 1416-03 Module 6 on “Reservoirs, Coolers and Filtration.”

H. See your Instructor and ask him if there is any other information that should be viewed or read that pertains to this module.

I. Refer to the Laboratory Learning Activities (Lab Sheet) in this module book and complete the Learning Activities for this module (See your Instructor).

J. Review for Module 146-08 Written Exam: Study all previous assignments in this module. See your Instructor and ask him to explain any area that you do not understand.

K. Module 1416-08 Written Exam: (See your Instructor)

L. Critique Module 1416-08 Written Exam: (See your Instructor)

M. Performance Exam Module 1416-08: Refer to the Laboratory Learning Activities (Lab Sheet) in this module book and complete the Performance Exam for this module (See your Instructor).

N. Students should complete this module by the end of the 105th clock hour.

IX. Module 1416-09: Maintenance and Troubleshooting

A. Time: 17 Hours

B. Module Learning Outcomes: Upon completion of this module the student will:
   1. Identify various components used in hydraulic systems. (C18)
   2. Evaluate hydraulic components by inspection and testing. (C20)
   3. Understand hydraulic theory, circuits and applications. (C19)
   4. Use tools and equipment. (C18)
   5. Use a computer. (C8)
   6. Practice shop safety. (C19)

C. Read Chapter 3, pages 3-16 (Hydraulic Oil Maintenance Considerations) in Resource 1416-01. (Textbook)

D. Read Chapter 4, pages 4-9 and 4-10 (Maintenance Considerations) in Resource 1416-01. (Textbook)

E. Read Chapter 5, pages 5-8 (Check for Pump Cavitation) in Resource 1416-01. (Textbook)
F. Read Chapter 14, pages 14-8 (Motor Cavitation), pages 14-19 and 14-20 (Hydraulic Motor Wear) and pages 14-20 (Check for Hydraulic Motor Wear) in Resource 1416-01. (Textbook)

G. Read Fact Sheet 1416-09-1 on “Troubleshooting Hydraulic Circuits.”

H. See your instructor and ask him to explain any part of the reading assignment that you do not understand.

I. View Audio Visuals: (See your Instructor)
   1. View Resource 1416-03 Module 7 on “Maintenance and Fault Finding.”

J. See your instructor and ask him if there is any other information that should be viewed or read that pertains to this module.

K. Refer to the Laboratory Learning Activities (Lab Sheet) in this module book and complete the Learning Activities for this module (See your Instructor).

L. Review for Module 1416-09 Written Exam: Study all previous assignments in this module. See your instructor and ask him to explain any area that you do not understand.

M. Module 1416-09 Written Exam: (See your Instructor)

N. Critique module 1416-09 Written Exam: (See your Instructor)

O. Performance Exam Module 1416-09: Refer to the Laboratory Learning Activities (Lab Sheet) in this module book and complete the Performance Exam for this module (See your Instructor).

P. Students should complete this module by the end of the 122nd clock hour.

X. Module 1416-10 Hydraulic System and Component Repair

A. Time: 20 Hours

B. Module Learning Outcomes: Upon completion of this module the student will:

   1. Understand hydraulic theory, circuits and application. (C19)
   2. Evaluate hydraulic components by inspection and testing. (C20)
   3. Fabricate hydraulic hoses. (C20)
   4. Use a computer. (C8)
   5. Use service publications. (C18)
   6. Use tools and equipment. (C18)
   7. Practice shop safety. (C19)

C. Read Fact Sheet 1416-10-01 on “Hydraulic Tubing”/
D. Read Fact Sheet 1416-10-02 on “Leakage and Sealing”.

E. See your Instructor and ask him to explain any part of the reading assignment that you do not understand.

F. View Audio Visuals: (See your instructor)
   1. View Resource 1416-04 on “Hose Types and Construction.”
   2. View Resource 1416-05 on “Hydraulic Hose Fittings and Adapter.”
   3. View Resource 1416-06 on “Cutting and Coupling Hydraulic Hose.”

**NOTE:** Refer to Fact Sheet 1416-10-03 for instructions to access and view these resources.

G. See your instructor and ask him if there is any other information that should be viewed or read that pertains to this module.

H. Refer to the Laboratory Learning Activities (Lab Sheet) in this module book and complete the Learning Activities for this module (See your Instructor).

I. Review for Module 1416-10 Written Exam: Study all previous assignments in this module. See your instructor and ask him to explain any area that you do not understand.

J. Module 1416-10 Written Exam: (See your Instructor)

K. Critique Module 1416-10 Written Exam. (See your instructor)

L. Performance Exam Module 1416-10: Refer to the Laboratory Learning Activities (Lab Sheet) in this module book and complete the Performance Exam for this module (See your Instructor).

M. Students should complete this module by the end of the 142nd clock hour.

**XI. Module 1416-11: Exit Exam**

A. Time: 2 Hours

B. Module Learning Outcomes: Upon completion of this module the student will:
   1. Complete the Exit Exam.

C. Review all previous assignments in this module.

D. See your instructor and ask him to explain anything that you do not understand pertaining to this course.
E. Module 1416-11 Written (Exit) Exam: (See your Instructor)

F. Critique Module 1416-11 Written (Exit) Exam: (See your Instructor)

G. End of Course Critique and enrollment in the next course in the program (See your Instructor).

H. Students should complete this module by the end of the 144th clock hour.