DET 181 Course Outline as of Fall 2020

CATALOG INFORMATION

Dept and Nbr: DET 181 Title: PREVENT. MAINT. & INSPC. Full Title: Preventive Maintenance and Inspection Last Reviewed: 12/9/2019

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	3.00	Lecture Scheduled	2.25	17.5	Lecture Scheduled	39.38
Minimum	3.00	Lab Scheduled	2.25	8	Lab Scheduled	39.38
		Contact DHR	0		Contact DHR	0
		Contact Total	4.50		Contact Total	78.75
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 78.75

Total Student Learning Hours: 157.50

Title 5 Category:	AA Degree Applicable
Grading:	Grade Only
Repeatability:	00 - Two Repeats if Grade was D, F, NC, or NP
Also Listed As:	
Formerly:	DET 81

Catalog Description:

The study of preventive maintenance and inspection practices as related to diesel powered vehicles and machinery. Preventive maintenance inspections are practiced.

Prerequisites/Corequisites:

Course Completion of DET 179, DET 182A, DET 182B, DET 184, DET 185, DET 188, DET 189; AND Course Completion or Current Enrollment in IED 190, AUTO 120, and AUTO 126

Recommended Preparation:

Eligibility for ENGL 100 or ESL 100 or equivalent

Limits on Enrollment:

Schedule of Classes Information:

Description: The study of preventive maintenance and inspection practices as related to diesel powered vehicles and machinery. Preventive maintenance inspections are practiced. (Grade Only)

Prerequisites/Corequisites: Course Completion of DET 179, DET 182A, DET 182B, DET 184, DET 185, DET 188, DET 189; AND Course Completion or Current Enrollment in IED 190, AUTO 120, and AUTO 126

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree: CSU GE:	Area Transfer Area	Effective: Effective:	Inactive: Inactive:
IGETC:	Transfer Area	Effective:	Inactive:
CSU Transfer	Effective:	Inactive:	
UC Transfer:	Effective:	Inactive:	

CID:

Certificate/Major Applicable:

Both Certificate and Major Applicable

COURSE CONTENT

Student Learning Outcomes:

At the conclusion of this course, the student should be able to:

- 1. Perform maintenance inspections on agricultural, construction, public transportation and trucking equipment.
- 2. Evaluate equipment condition and determine repair options.

Objectives:

At the conclusion of this course, the student should be able to:

- 1. Describe maintenance and inspection procedures for diesel powered equipment.
- 2. Evaluate symptoms of potential machine failure.
- 3. Perform and assess preventive maintenance inspections on the following:
 - a. tracks, tires and wheels
 - b. engine and powertrain components
 - c. electrical/electronic components
 - d. chassis and undercarriage components.
- 4. Evaluate conditions and determine repair options.
- 5. Utilize digital media for service information.
- 6. Discuss and apply personal, shop, and environmental safety procedures.

Topics and Scope:

- I. Maintenance and Inspection Procedures
 - A. Scheduled maintenance
 - B. Preventive maintenance
- II. Using Technical Manuals
 - A. Hard copy
 - B. Computerized
 - C. Service bulletins

III. Regulations for Different Industries

- A. Department of Transportation (DOT)
- B. Federal Railroad Administration (FRA)
- C. Society of Automotive Engineers (SAE)

IV. Lubrication

- A. Solid and liquid lubricants
- B. Lubrication procedures
- C. Rating symbols
- V. Failure Analysis
 - A. Metallic parts failures
- B. Failures due to neglect/lack of maintenance
- VI. Tracks, Tires and Wheels
 - A. Condition and wear
 - B. Rims, wheels, rollers
- VII. Engine Compartment
 - A. Fluid levels
 - B. Leak inspection
 - C. Belts and hoses
 - D. Component mounting
 - E. Wiring and clamps
 - F. Air intake system
 - G. Fuel systems
 - H. Cooling systems
- VIII. Electrical and Electronic systems
 - A. Inspect/test batteries
 - B. Battery cables and terminals
 - C. Starting system tests
 - D. Lighting system check
 - E. Gauges and instruments
 - F. Diagnostic display
- G. Computer malfunction lamp diagnosis
- IX. Power Train
 - A. Transmission service
 - B. Rear axle service
 - C. Driveline inspection
 - D. Clutch adjustment
- X. Chassis/Undercarriage
 - A. Steering system
 - B. Suspension inspection
 - C. Brake adjustment and inspection
 - D. Anti-lock brake malfunction diagnosis
 - E. Springs and attachments
 - F. Component mounts
- XI. Hydraulic Systems
 - A. Fluid type and level indicators
 - B. Filters and maintenance
- XII. Safety
 - A. Personal
 - B. Shop
 - C. Environmental/hazardous material handling

All topics are covered in both the lecture and lab parts of the course.

Assignment:

Lecture-Related Assignments:

- 1. Read 25 to 50 pages per week
- 2. Ten to fifteen tests including final exam

Lab-Related Assignments:

- 1. Perform preventive maintenance inspections and prepare written reports
- 2. Complete inspection and evaluation worksheets
- 3. Complete National Automotive Technicians Education Foundation (NATEF) recommended task sheets
- 4. Daily work logs (work assigned, work completed)

Methods of Evaluation/Basis of Grade:

Writing: Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

Daily work logs; Written inspection report

Problem Solving: Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Inspection and evaluation worksheets and NATEF task sheets

Skill Demonstrations: All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

Perform preventive maintenance inspections

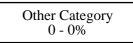
Exams: All forms of formal testing, other than skill performance exams.

Tests including final exam

Other: Includes any assessment tools that do not logically fit into the above categories.

None

Exams 30 - 50%



Representative Textbooks and Materials:

Fundamentals of Mobile Heavy Equipment. Wright, Gus and Duffy, Owen and Heard, Scott. Jones and Bartlett. 2019 Fundamentals of Medium/Heavy Duty Commercial Vehicle Systems. Duffy, Owen and Wright, Gus. Jones and Bartlett. 2016 Instructor prepared materials

Problem solving 10 - 25%

Skill Demonstrations 20 - 40%

Writing

0 - 25%