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

Recommended: Eligibility for ENGL 100 or ESL 100 or equivalent
Limits on Enrollment:
Transfer Credit:
Repeatability: Two Repeats if Grade was D, F, NC, or NP

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree:	**Area**	Effective:	Inactive:
CSU GE:	**Transfer Area**	Effective:	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	Writing 0 - 25%

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	Problem solving 10 - 25%

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

Perform preventive maintenance inspections	Skill Demonstrations 20 - 40%

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

Tests including final exam	Exams 30 - 50%

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

None	Other Category 0 - 0%

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