

CATALOG INFORMATION

Dept and Nbr: DET 188 Title: HEAVY-DUTY POWER TRAIN
Full Title: Heavy-Duty Power Train
Last Reviewed: 1/22/2018

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: AGMEC 88
Formerly: DET 88

Catalog Description:
In depth study of heavy duty drivetrain. Course covers theory, operation, diagnosis, service and overhaul of clutches, manual transmissions and rear axle assemblies.

Prerequisites/Corequisites:

Recommended Preparation:
Eligibility for ENGL 100 or ESL 100 and Course Completion or Concurrent Enrollment in DET 179

Limits on Enrollment:

Schedule of Classes Information:
Description: In depth study of heavy duty drivetrain. Course covers theory, operation, diagnosis, service and overhaul of clutches, manual transmissions and rear axle assemblies. (Grade Only)
Prerequisites/Corequisites:
Recommended: Eligibility for ENGL 100 or ESL 100 and Course Completion or Concurrent Enrollment in DET 179
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:
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CSU Transfer:	Effective:	Inactive:
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UC Transfer:	Effective:	Inactive:
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CID:

Certificate/Major Applicable:

Both Certificate and Major Applicable

COURSE CONTENT

Outcomes and Objectives:

Upon successful completion of this course students will be able to:

1. Explain the operation of, evaluate and perform repairs on the following components:
 - a. clutches
 - b. manual transmissions
 - c. automatic transmissions
 - d. drivelines
 - e. differentials and final drives
 - f. electronic transmission controls
2. Use technical references properly, including repair and parts manuals.
3. Discuss and apply personal, shop, and environmental safety procedures.

Topics and Scope:

1. Power Transmission
 - a. power transmission theory
 - b. system operation
 - c. system components
2. Clutches
 - a. single disc clutches
 - b. twin disc clutches
 - c. clutch controls
 - d. torque converters
3. Manual Transmissions
 - a. gear identification
 - b. gear ratios
 - c. single countershaft transmissions
 - d. twin countershaft transmissions
4. Automatic Transmissions
 - a. torque converters

- b. operation principles
 - c. shift control
- 5. Driveshaft Assemblies
 - a. universal joints
 - b. drive shafts
 - c. drive line angles
- 6. Differentials and Final Drives
 - a. single speed differentials
 - b. multi-speed differentials
 - c. differential locking devices
 - d. simple and planetary final drives
- 7. Power train service, diagnosis, and repair
 - a. Repair and parts manuals
- 8. Safety
 - a. personal
 - b. shop
 - c. environmental

Assignment:

1. Read 40 pages a week
2. Inspect and adjust clutch assemblies
3. Disassemble, inspect and reassemble a single counter shaft transmission and complete a written report
4. Disassemble, inspect and reassemble a twin counter shaft transmission and complete a written report
5. Disassemble, inspect and adjust a final drive assembly and complete a written report
6. 3-5 exams

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.

Transmission and final drive reports

Writing 0 - 20%

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

Transmission inspection and assembly

Problem solving 20 - 35%

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

Clutch inspection, Final drive adjustments
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Skill Demonstrations 20 - 35%

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

Exams

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:

Heavy Duty Truck Systems, Sean Bennett, Delmar Learning. 5th edition, 2011