DET 88 Course Outline as of Spring 2009

CATALOG INFORMATION

Dept and Nbr: DET 88 Title: HEAVY-DUTY POWER TRANS Full Title: Heavy-Duty Power Transmissions 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 66

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:

Completion of or Concurrent Enrollment in DET80 and Eligibility for ENGL100 or ESL100

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: Completion of or Concurrent Enrollment in DET80 and Eligibility for ENGL100 or ESL100 Limits on Enrollment: Transfer Credit: CSU;

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree: CSU GE:	Area Transfer Area	ı		Effective: Effective:	Inactive: Inactive:
IGETC:	Transfer Area	l		Effective:	Inactive:
CSU Transfer	:Transferable	Effective:	Fall 1981	Inactive:	Fall 2014
UC Transfer:		Effective:		Inactive:	

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 basic 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. Demonstrate methods and procedural practices in servicing, diagnosis, and repair.
- 3. Evaluate malfunctions and propose remedies.
- 4. Use technical references properly, including repair and parts manuals.
- 5. 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. mechanical clutches
 - b. hydraulic assist clutches
 - c. fluid couplings
 - d. torque converters
 - e. hydraulic retarders
- 3. Mechanical 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
- 8. Safety
 - a. personal
 - b. shop
 - c. environmental

Assignment:

Students will:

- 1. Work on power train components
- 2. Reading 40 pages a week
- 3. Study and practice maintenance procedures
- 4. Lab reports
- 5. Assigned projects.
- 6. 3-5 multiple choice tests.

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.

None, This is a degree applicable course but assessment tools based on writing are not included because problem solving assessments and skill demonstrations are more appropriate for this course.

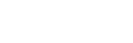
Problem Solving: Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

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

structured lab exercises

Writing 0 - 0%	



Problem solving 10 - 25%

Skill	Dem	nonstrations
	30 -	50%

Tests, multiple choice

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, Ian Andrew Norman, Thompson Delmar Learning. 4th edition, 2006

Exams 30 - 50%