Course: DIES 227 Advanced Hydraulics

Department: Diesel Technology

Course Description:

This course is designed to build off of the fundamentals learned in the hydraulic systems class, which will provide the student with an in-depth study of the various types of hydraulic pump controls, flow and horsepower regulation. Topics covered include; open and closed center hydraulic systems, pressure-compensation, load-sensing pressure-compensation, flow sharing/ downstream compensation, positive and negative flow controls, flow summation and hydrostatic drives.

Two lecture hours and two laboratory hours each week.

COURSE OUTCOMES	**SAMPLE OUTCOMES ACTIVITIES**	**SAMPLE ASSESSMENT TOOLS**
Upon successful completion of this course students should:	To achieve these outcomes students may engage in the following activities:	Student learning may be assessed by:
1. Identify various components used in open and closed center hydraulic systems (WC, IL and CCT)	• Textbook readings • On-line demonstration • Video presentations • Classroom discussions • Laboratory demonstrations	• Tests, quizzes • Mechanical drawings • Homework assignments
2. Follow safety guidelines specific to hydraulic systems; (CCT)	• Textbook and on-line readings • Video presentations • Classroom discussions • Laboratory demonstrations	• Tests & Quizzes • In-class conversations • Laboratory evaluations
3. Perform advanced diagnostic tests and interpret results; (WC, CCT, and IL)	• Textbook and on-line readings • Video presentations	• Tests, quizzes • Classroom discussion

	• Classroom demonstrations • Laboratory demonstrations	• Laboratory assignments
4. Evaluate hydraulic pump load sensing and pressure compensating systems (WC and IL)	• Textbook readings • Video presentations • Classroom collaborative learning • Classroom discussions • Laboratory demonstrations	• Test quizzes • Homework assignments • Laboratory assignments
5. Understand hydraulic pump regulation and torque control; (WC, IL)	• Textbook readings • Video presentations • Classroom collaborative learning • Classroom discussions • Laboratory demonstrations	• Test quizzes • Homework assignments • Laboratory assignments
6. Correctly disassemble, inspect, repair and reassemble components of a hydrostatic drive	• Textbook and on-line readings • Classroom presentations	• Tests, quizzes • Written assignments • Homework assignments

transmission; (CCT, IL)	• Laboratory demonstrations • Class and Laboratory discussions	• Laboratory assignments

This course includes the following core competencies: Critical and Creative Thinking (CCT), Information Literacy (IL), and Written Communication (WC).