Course: DIES 133 Governing and Computer Controls

Department: Diesel Technology

Course Description:

This course is a study in the theory and operating characteristics of various types of governing and computer control systems as applied to the diesel engine. The study of the governing system includes functions of the system and detailed analysis of the mechanical, pneumatic, hydraulic, and electrical governors. The second major focus of this course is on the computer control system and its role in engine governing, emission control, and diagnostics. Through lab application, this course gives students the necessary skills used in solving problems in governing and computer control systems.

Two lecture and two laboratory hours per 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 and understand mechanical, pneumatic, hydraulic and electrical governing principles (WC, IL and CCT)	• Textbook readings • On-line demonstration • Video presentations • Classroom discussions	• Tests, quizzes • Mechanical drawings • Homework assignments
2. Analyze governor related issues affecting diesel fuel injection (CCT)	• Textbook and on-line readings • Video presentations • Classroom discussions • Laboratory demonstrations	• Tests & Quizzes • In-class conversations • Laboratory evaluations

3. Be proficient with various fuel injection systems (WC, CCT, and IL)	• Textbook and on-line readings • Video presentations • Classroom demonstrations • Laboratory demonstrations	• Tests, quizzes • Classroom discussion • Laboratory work
4. Identify and understand control module programming logic and parameters (WC and IL)	• Textbook readings • Video presentations • Classroom collaborative learning • Classroom discussions	• Test quizzes • Homework assignments
5. Apply knowledge of parameter logic to perform advanced diagnostic tests, update ECM programming, customize parameter sets, perform OEM service routines and hysteresis tests; (CCT, WC, and IL)	• Textbook readings • Video presentations • Classroom collaborative learning • Classroom discussions • Laboratory assignments	• Test quizzes • Homework assignments • Laboratory evaluations
6. Connect to and use various OEM software to analyze reports and control	• Textbook and on-line readings • Classroom presentations	• Tests, quizzes • Written assignments • Homework assignments

module stored data; (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).