Course Outline

HD Diesel Engine Fundamentals Service 30S

Instructor	Mr. Church
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Prerequisites	Interest in mechanics
Course Description	A student wanting to develop skills in the heavy duty equipment service and repair industry must have knowledge of the basic principles of diesel engines, the inner workings and relations of the engine components, and how those relate to vehicle operation. The student will learn the procedures to service, repair, and replace engines and their components.

General Objectives and Learning outcomes	Describe and apply appropriate health and safety practices as they pertain to diesel engine fundamentals and service. Identify, select, use, and maintain tools, equipment, materials, and consumables. Describe and demonstrate equipment access/transport procedures. Diagnose and repair problems with heavy duty equipment systems. Describe and demonstrate the transferable cross-curricular knowledge and skills pertaining to heavy duty equipment technology. Demonstrate an awareness of sustainability as it pertains to heavy duty equipment technology. Demonstrate an awareness of the ethical and legal standards as they pertain to the heavy duty equipment service and repair industry. Demonstrate employability skills related to the heavy duty equipment service and repair industry. Demonstrate an awareness of the evolution of heavy duty equipment technology, including its technological progression and emerging trends.

Units of study	○ Engine cooling systems ○ Lubrications types and systems ○ Air intake, filtration, turbos, and super charging ○ Measuring devices, how to use and read them ○ Starting and cranking systems ○ Engine block design ○ Crankshaft design and components ○ Piston and connecting rod assemblies ○ Engine head and valve components ○ Disassemble and reassemble procedures ○ Setting and adjusting procedures ○ Environmental systems and its effects ○ Maintenance procedures and rational ○ Future engine designs and expectations
Evaluation	Assignments are required to be handed in on time. A mark of 0 will be recorded if they are not. The learner will still have the opportunity to complete the assignment if an M (missing) is entered in the power-school program. Occasionally additional assignments will be given that are not listed in gradebook. These assignments will be to strengthen learning of a specific outcome. Very late assignments can have a 20% late mark deduction, or the students may be asked to take a quiz on the material to determine that assignments mark.

Assessment guidelines	**Shop skills assessments** will be based on arriving to the shop on time, participation/willingness to work, safe work practices, cleaning work area, general mechanical skills, respect of other people, proper tool and equipment usage, **Formative assessments** will occur while correcting and discussing booklets as a class. Quizzes will be corrected by myself and the answers will be discussed with the class. **Summative assessments** will occur at the end of the semester during final exams. The final grades will weighted as ○ 1 times the weight for most work book assignments ○ 1 times the weight for minor shop projects ○ 2 times the weight for major shop projects ○ 2 times the weight for quizzes ○ 4 times the weight for the final exam

Learning behaviors	Learn behaviors will be marked in power-school program as the follows. These learning behaviors will be based on the in class and shop activities. The three sections are Personal management skills, Active participation in learning and Social responsibility. C for constantly U for usually S for sometimes R for rarely

Class expectations	Students are expected to ○ Follow all safety rules and procedures. ○ Wear the proper PPE in the shop ○ Show up to class on time ○ Treat everyone with respect ○ No foul language or conversations is allowed ○ Bulling will not be tolerated ○ Keep the work area clean and safe ○ Report any broken or damaged tools ○ Return tools, consumables, and equipment when done with the item or at the end of class ○ Participate in all shop activities ○ Not leave parts on tool boxes or in an exit route ○ Clean up any oil or chemical spills immediately ○ Clean up after yourself, and help others clean up too ○ Drink containers must not be left after use ○ Use your time wisely for completing class or shop work ○ Tell me if you need to leave the HD building ○ It is your responsibility to catch up on any work that you missing due to an absentee. Very late assignments can have a 20% late mark deduction, or a quiz on the material will determine that assignments mark. ○ Stay organized

Digital citizenship	○ Mobile devices should only be used as a learning and organizing tool. ○ Computer are only for doing assignments and the Internet use is only for assignments and HD research. ○ Pictures of equipment is recommend but you must ask for permission before taking pictures of other students or an instructor. ○ Mobile devices should never be used for entertainment such as video games. Personal Devices may be used discreetly, as long as they do not interfere with Learning. If learning is not occurring the devices will need to be left in lockers or put into the charging cabinet until the end of class. Additional measures/procedures may be implemented at any time. They will be reviewed with students and posted.