



Digital Automotive Learning Resource

ETEC 565s

The University Of British Columbia

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Overview

The purpose of this digital resource is to supplement automotive students and automotive teachers with the needed modules that are present to assist them in understanding mechanical concepts. This resource will be split into two segments: a theory segment, and a practical segment. The theory segment will guide students through modules, which focus on specific systems of the automobile. In each module, there will be a series of videos, text and simulated animations of how moving mechanical components in an automobile function. This provides students with a visual understanding of what they will eventually be required to physically work on in the workshop. Also, if students are absent from class for whatever reason, they will all still have the information they need through this mobile friendly resource.

The practical segment provides students with step-by-step tutorial videos for each lab process they must complete. These areas include but are not limited to the following: oil change procedures, brake bleeding procedure, brake repair procedure, wheel balancing procedures, tire machine procedures, cooling system testing, and suspension system testing for instance. Each one of these practical processes follow their appropriate theoretical components that were previously learned in the theory modules. The idea is, the students read through the module they are interested in, watch content related videos, understand how moving components work via **narrated animation and simulations**. They will then be required to take a quiz (through microsoft forms) at the end of the module to check for understanding. There will also be posted supplemental worksheets that will be submitted through Microsoft Teams. Once the theory section is complete, they are able to work on the practical related task for that module set. For instance, if a student was learning about the theory of the braking system. They would read through that module, watch posted videos, understand how moving components work together, and then finally, attempt the quiz. Once the quiz is complete, and students have a base knowledge, they are free to begin the practical portion of the module. They would find the appropriate posted tutorial video and begin working. All the information needed will be posted through this resource. This allows the teacher to become more of a facilitator rather than the bearer of all information. This is very important in my opinion because the shop can become very busy and students can be very needy. They are keen, but lack experience. This resource will help them over the bumps they may experience during their processes and the teacher can spend most of their time assisting where needed, rather than having a large majority of the class waiting for his/her assistance. This is why this resource can be highly beneficial in a Technology Education shop setting.

Goals

1. To have students learn at their own pace, and reference this digital resource for all assignment and shop related questions. At the end of each module, there will be a quiz to check for content understanding.
2. Students can watch tutorial videos over and over again rather than turning to the teacher every time they are in need of assistance. This frees up the teacher's time to further assist students with one off "tricks of the trade" type problems such as a stuck bolt etc.
3. Teacher's focus on facilitating the processes and ensuring students are using proper work techniques and procedures rather than repeatedly going through step by step procedural tasks. This is what the videos and animations are for. If students missed a teacher's demonstration, they can simply refer to the tutorial video rather than having the teacher explain processes all over again.

Specifications:

There will be a section where students can upload various media of their progress based on which module they are currently working on. They can upload progress photos of their shop productions that day, they can record video of a specific process they would like to share. Or they can record a voice note. This way, there is a record of what they have learned.

Modules:

General shop safety

Lubrication System

Ignition System

Fuel System

Cooling System

Charging System

Braking System

Putting it all together

I. Website

The resource will be designed on weebly. Each module will have it's own page, which will include the theory and practical portions of the assignment.

I will be developing some of my own video and animations to add to this resource.

Animations will be module specific to enhance the understanding of mechanical concepts. Animations will be narrated and explained.

Videos will also be module specific and will be used to guide students through their lab activities. Some videos will be created by myself, and other videos will be created by other people. The point is, the content is rich and students can use these resources to get the most out of their Automotive class. Also, this resource can definitely help a new, young automotive teacher. There are many ways a Teacher can run their shop and teachers can either choose to have their students follow these modules, or they can simply pick and choose bits and pieces from my resource that they would want to share with their class, weather it be a single animation of how a mechanical process works, or perhaps they would like to show a video to their class.