

ATech Educator News

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New Automotive Teachers: Orchestration of Planning for Guiding Students' Learning

Where do you start as a new automotive teacher? So often we fall into the pattern of using the lecture approach, however, automotive program structures may not fit the lecture approach of higher education. In these types of situations, the lecture approach could frustrate both the teacher and the students. Student progress could be hit-or-miss and the teacher may feel that things are out of control.

First, the teacher must accept not being the focal point of attention. The program must be organized with each student as the focus. Training aids must be utilized to enable the teacher to manage instruction and guide students in lieu of the teacher standing in front of a class with talking as the primary means of delivery. Is there a place for lecture? Yes, but lecturing assumes that all students have a common need at a specific point in time. That is unusual in programs such as automotive technology which require the development of both cognitive and manipulative skills for a wide range of entering student abilities.

How to start? After completing orientation and safety training, pick a section of the program that is suitable for entry-level students based on safety issues, interest of students, and the availability of training aids. Let's examine each one individually.

Safety is the number one concern. If you want a guaranteed lawsuit, operate your program as a job shop with beginning students performing live work. After the accident, how will you answer the question, "Please show the jury this student's documented skill evaluations before he/she was allowed to perform this task on someone's vehicle"? Don't believe that letting students work only on their cars gets you out of that possibility. It doesn't. The teacher is responsible, period.

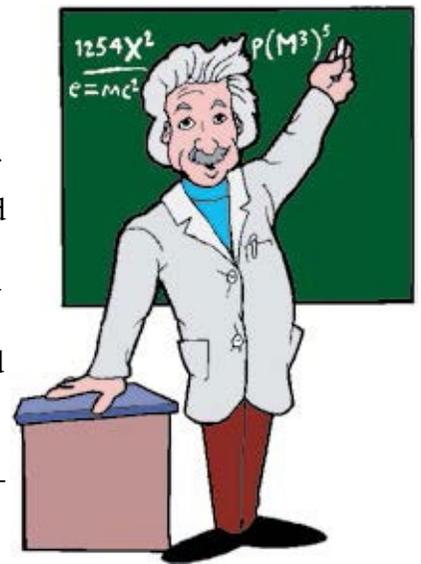
Gaining and maintaining the interest of stu-



dents is another primary concern. Students will invest in their learning if they are motivated. The easiest way to motivate students in any program is to let them work on what interests them. What are the primary interests of the majority of your entering students—NASCAR, hot-rods, drag racers, custom cars? The common theme in these areas that may be suitable for beginners is mechanical (engines). Organizing your program to let entry-students do an engine on a stand tear down can be good if the lesson is organized to teach the relationship of specific engine parts and function. There aren't many jobs for engine rebuilders today, but with proper instructional and evaluation sheets, the process can provide students with useful knowledge and help free the teacher to manage the total class instruction. With careful planning, the safety concerns of this activity can be reduced.

The third concern, availability of training aids, can also be addressed with engine tear down, since engines and stands that are suitable for this activity are readily available. The key to effective use of this instructional activity is organization. Time management here must be carefully controlled so that the activity does not merely become a "stay-busy" assignment. An engaging lesson that has meaning is the goal.

What should follow this beginning mechanical section? I suggest electrical, although it is not likely to be a subject that students would choose. Electrical troubleshooting skill development will require many opportunities to practice the "black art" before students stop thinking of electricity as magic. Safety on twelve volt systems is not a major concern, and training aids can be either home built or purchased. If your program has access to

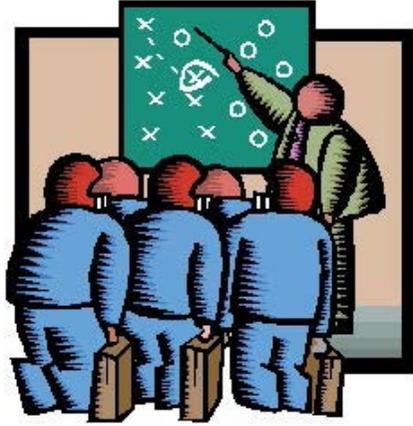


computers, reasonably priced simulation programs that will allow students to practice troubleshooting circuits are available. It is best to start troubleshooting circuits as soon as possible because this skill only comes with practice, and the logical troubleshooting process will aid the student in understanding how a circuit works.

With the use of virtual software or an online electrical curriculum, I have the ability to start my students on the electrical troubleshooting process in the classroom, in the computer lab, or on stations set up in the automotive lab.

Training first on computers prevents students from damaging components in the initial stages of learning electrical circuits. I have seen more success

with students while introducing the basics of electrical circuits in a virtual way. You may want to do some research and talk to other instructors to help decide what



will work for you.

The next step that I take is to move students on to more hands-on activities with the GM S.E.T hardware breadboard system, allowing students to use meters and live components. After students have developed the requisite skills, the final step is to move on to training vehicles, wherein we use instructional and evaluation sheets. Again, with a little research and some networking with other instructors, you can find the system or electrical trainers that will work for you.

Always keep in mind that organization is the key to handling difficult situations and difficult students in your program. Keeping students involved with well-planned, on-task activities will help eliminate behavior and discipline problems.

Whether you use these suggested starting areas or not, you should develop your instructional plans with the goal of reducing your direct involvement. Over time you will find your program improves and your enjoyment of teaching increases.

Lyle Taylor, Instructor

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JANUARY 2018 ISSUE
FOR TRAINING DATES
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ATECH TRAINING!**

READY FOR IMMEDIATE DELIVERY



Starting System

MODEL 811C

Charging System

MODEL 812C

Lighting System

MODEL 821C

Power Window System

MODEL 840C

Power Door Lock System

MODEL 850C

Power Seat System

MODEL 860C

Supplemental Inflatable Restraint System

MODEL 1552

Engine Performance Troubleshooting Trainer

MODEL 3601

Intermittent Fault Box

MODEL 2112

Electrical/PWM/Fault Trainer

MODEL 2210

Electronic Ignition (EI) System

MODEL 1772

Integrated Electronic Ignition System

MODEL 1792

Engine Cooling Fan System

MODEL 310FJ

Blower Control System

MODEL 320FJ

Drum/Disc Brake (4-wheel)

MODEL 400/4W

Manual Transaxle Rebuild

MODEL 110



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Automotive Technology

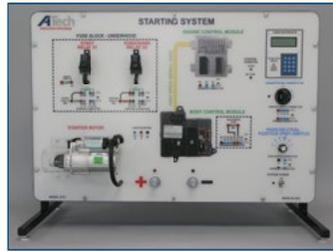
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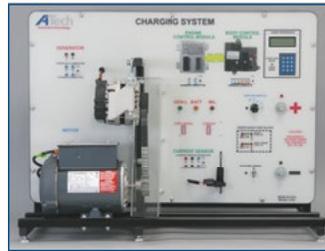
Next Generation “Smarter Car”



Power Door Lock System
Model 850C



Starting System
Model 811C



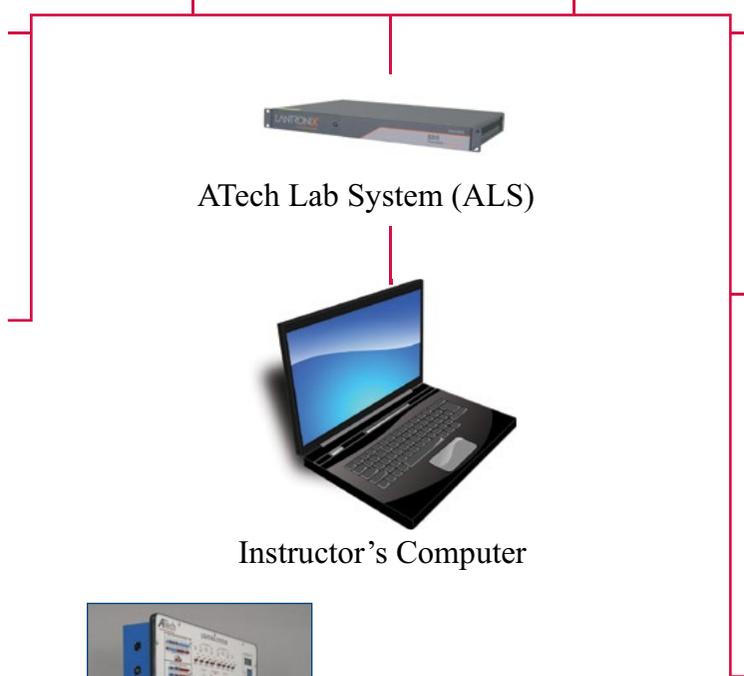
Charging System
Model 812C



Wiper/Washer System
Model 830C



Lighting System
Model 821C



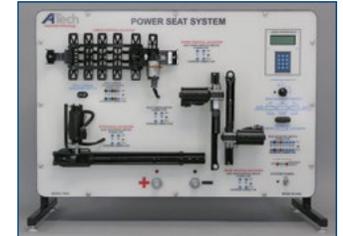
ATech Lab System (ALS)



Instructor's Computer



Power Window System
Model 840C*



Power Seat System
model 860C*



Keypad/Display
Interface



Optional Floor Model Legs
model TFMJ

ATech's Next Generation “Smarter Car” configuration simultaneously allows a class of students to study and troubleshoot separate electrical/electronic systems.

Features:

- Courseware Includes: Instructor Guide, Student Manual, and Service Information
- Actual new vehicle components
- Insert hard faults using the built-in keypad
- Insert intermittent or hard faults using computer or ALS
- Compatible with Instructor's Management Program (IMP)
- Built in Scan Tool (*Not Applicable)
- Requires 12V Battery (Starting System and Charging System require a 12VDC battery) or Power Supply (power supply can be purchased as an option)

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Friday & Saturday
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Hosted by:
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Contact:
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