



# EECSTC

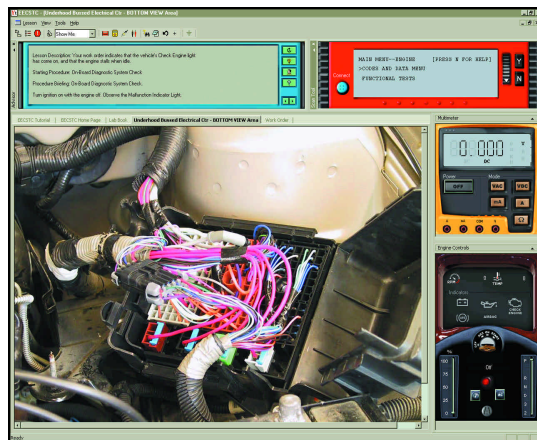
Electronic Engine Control Skills Training Course

*"The Electronic Engine Control Skills Training Course is a realistic distance education program that will give our students practical automotive trouble-shooting and repair skills via the Internet."*

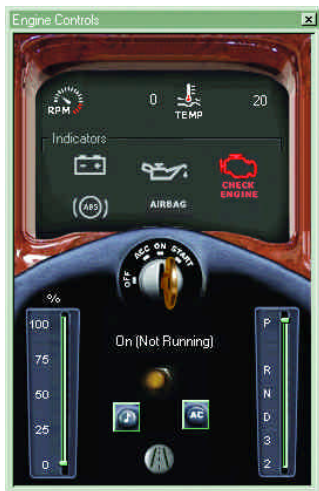
**Peter Woodall**  
Chairperson, Corporate Training and Modified Apprenticeship Programs  
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Centennial College

The Electronic Engine Control Skills Training Course (EECSTC) provides a powerful new training tool for the delivery of online job skills training to the automotive and transportation services.

The automotive industry has undergone profound structural and technological changes in the past 25 years. The most significant being the introduction of advanced electronics. These developments have created a situation where the skills required to service and repair today's vehicles are fundamentally different to those of 25 years ago – and current training practices are inadequate or unable to deal with these innovations.



Overall EECSTC Interface



Virtual Dashboard

## Fixing cars – over the Internet!

EECSTC aids in the training of professional **automotive technicians and apprentices** who are required to learn or update their ability to diagnose and troubleshoot complex automotive electronics via the Internet.



Built using Biographix's proprietary ISLE™ technology, EECSTC simulates the automobile's electronic engine control system to the component level for an accurate "real-time" replication of an actual operating engine. Instructors can introduce persistent and transient faults into a number of different engine components. Students then try to diagnose and repair the system on-line.



## Challenge:

- Provide **complete training** for diagnosing automotive electronic faults
- Deliver distance learning to students **without workshop access**
- Demonstrate and train students to **operate real shop diagnostic tools**
- Require the student to **solve real problems**
- Seamless integration into existing Learning Management Systems (LMS)

## Features:

- Alternative training modes: **Show Me, Coach Me and Practice** to match student learning style
- Lesson debrief sessions reinforce student learning
- Engine system modelled with 160 "real-time" component simulations
- Component simulations configurable to any make / model
- More than 10 virtual pieces of test equipment: scan tool, multimeter
- Exercises completed in less than 15 minutes
- SCORM and AICC compliant



Simulated Test Equipment

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## biographix E-LEARNING ARCHITECTS

### How Students Use EECSTC

Students troubleshoot faults by “plugging in” virtual computerized diagnostic equipment and taking test measurements. Engine components can be inspected, replaced and maintained, such as cleaning the terminals of a battery. The student

#### EECSTC EXERCISES COVER:

1. Batteries
2. Charging System
3. Cranking System
4. Indicators
5. Ignition
6. Fuel Injection
7. Sensors and Actuators
8. Wiring

can “disconnect” components and use the manufacturer’s standard diagnostic procedures to virtually test individual components and “replace” them if they are faulty.

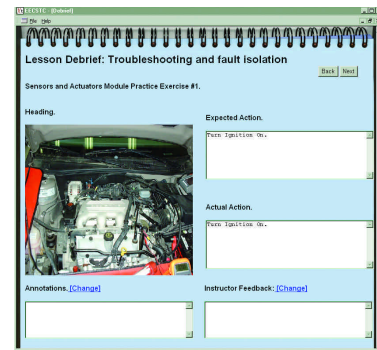
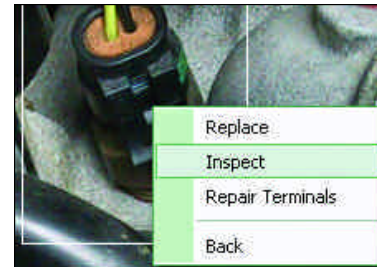
### Real-time Simulation

Throughout the training, the real-time automotive simulation makes the virtual engine components and diagnostic equipment respond with real-world accuracy. The simulation modules and the Intelligent Agent work together for a realistic learning experience. For example,

the Intelligent Agent will give a warning if the student actions would, in a real environment, be hazardous to equipment or to them.

### Learning from the Specialists

The EECSTC Intelligent Agent system tracks the student’s actions as the faults are diagnosed and repaired. The system can advise the student on the proper actions and will record the student’s activities throughout the session. Upon completion of the exercise, the student views the Debriefing Session to compare actual actions with those recommended by maintenance specialists and by the engine manufacturer.



#### QUICK REFERENCE

- Training modules include: Fuel Injection, Cranking, Ignition, Sensors and Actuators, Charging, and Indicators.
- Exercises completed in less than 15 minutes, comprehensive user and instructor guides.
- Over 160 components modelled, including over 10 pieces of diagnostics test equipment.
- SCORM and AICC compliant, seamless integration into existing LMS systems (i.e. eCollege™)
- Reconfigurable components for vehicle and test equipment, make and model.
- Microsoft® Windows™ (Windows 95,98,NT4.0,2000,XP).
- Pentium II or greater processor, minimum 128 MB RAM, 1024 x 768 screen resolution, sound card required.

#### Centennial College

The Centennial College School of Transportation is Canada’s largest transportation training facility with labs, shops and classrooms that cover an area equal to 11 football fields.

#### Role:

- Automotive engine experts
- Instructional Design

#### Biographix

Founded in 1990, The Biographix Corporation is an e-learning service provider focused exclusively on the design, development and support of simulation-based training applications and intelligent “job-aids” for complex equipment, systems and processes.

#### Role:

- ISLE architecture
- Engine and tool simulation

#### TVOntario

TVOntario’s mission is to support life-long learning in Ontario by providing quality educational programming in English and French using television and other communications technologies.

#### Role:

- Project Administration

EECSTC was developed with assistance from the Lifelong Learning Challenge Fund (LLCF). The LLCF is financially supported by the Government of Ontario.

For more information on the Electronic Engine Control Skills Training Course (EECSTC) please contact:  
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www.biographix.com