



COURSE OUTLINE

Course Name: Advanced Electric/Electronics

Department Head/Coordinator: Jason Devisser

School or Centre:	Department:	
School of Transportation Trades	Automotive Service Technician	
Course History:	Year of Study:	
New Course	2nd Year Post-secondary	
Name of Replacing Course (if applicable):	Course Number:	IAST2020
	Number of Credits:	5

Course Pre-requisites (if applicable):

None

Course Co-requisites (if applicable):

None

PLAR (Prior Learning Assessment & Recognition)

No Yes (details below):

Course Description:

Students learn about advanced electronic systems and diagrams, advanced electrical test equipment, computer control systems and multiplex and network systems. Topics include advanced electronic components, advanced diagnostic procedures used for troubleshooting and testing advanced electrical signals.

Instructional Strategies:

Classroom activities are lectures, demonstrations, audio-visual presentations and exercises. Practical experience takes place in an active shop setting. The extensive workshop experience provides reinforcement of theoretical concepts, develops hand skills, and familiarity with repair procedures, electronic equipment and standard safety procedures. All modules are designed to enable the student to work independently and in groups.

Course Learning Outcomes:

At the end of this course the student will be able to:

- Identify and describe the design and operation of advanced electronic components
- Describe electrical signal types
- Describe the design and layout of advanced wiring diagrams identifying symbols and components
- Understand the importance of following a diagnostic process
- Describe diagnostic procedures
- Describe troubleshooting recourses for technicians
- Describe and use diverse types of electrical testing equipment
- Identify the components and describe the operation of computer control systems
- Identify the components and describe the operation of multiplex and network computer control systems
- Describe the operation of multiplexed electronic system

Program Learning Outcomes:

- Practice working safely including complying with WorkSafeBC and WHMIS regulations
- Apply employability and communication skills while working in a businesslike manner
- Utilize hand, measuring, and power tools and equipment safely and effectively
- Provide general automotive maintenance services including lubrication and fluids, belts and hoses, exterior lamps, body trim and hardware, tires and wheels, non friction bearings and spindles and hubs
- Assess, diagnose and service hydraulic, drum brake, disc brake, power assist and anti-lock brake systems
- Assess, diagnose and service steering systems
- Assess, diagnose and service suspension systems
- Describe and diagnose electrical, electronic, and ignition systems
- Analyze and diagnose On Board Diagnostic (OBD) System Data using advanced electrical test equipment including computer controls, multiplex and network systems
- Identify and service fuel delivery systems, fuel types, alternate fuels, and gasoline fuel injection components
- Describe and test engine management systems including input sensors and output actuators
- Describe new vehicle technology and hybrid systems
- Describe and service vehicle Pre and Post Combustion Systems, emissions, Test OBD-II Evaporative Emission System, and Perform exhaust gas analysis

Course Topics and Sequence Covered:

Advanced electronic components
Electrical signals
Advanced wiring diagrams
Diagnostic procedures and troubleshooting resources
Electrical testing equipment
Computer control systems
Multiplex and network computer control systems
Exhaust gas analysis

VCC Education and Education Support Policies

There are a number of **Education** and **Education Support** policies that govern your educational experience at VCC, please familiarize yourself with them.

The policies are located on the VCC web site at:

<http://www.vcc.ca/about-vcc/policies/index.cfm>

To find out how this course transfers, visit the BC Transfer Guide at www.bctransferguide.ca.

FOR COMMITTEE USE ONLY

Date Approved by Education Council:		Date Approved by VCC Board (if applicable):	
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