



# AUTOMOTIVE ELECTRICAL/ELECTRONICS INTRODUCTION (I)

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## Course Syllabus

<b>Course Number:</b>	EL101	<b>Instructor:</b>	Ron Rader
<b>OCAS Code:</b>		<b>Phone Number:</b>	580-327-0344
<b>Course Length:</b>	45 hours	<b>Email:</b>	rrader@nwtech.edu
<b>Career Cluster:</b>	Transportation	<b>Campus:</b>	Alva, OK
<b>Career Pathway:</b>	Automotive Service	<b>Program:</b>	Automotive Service Technology
<b>Career Major:</b>	Automotive Service Technician, Automotive Chassis Technician, Automotive Maintenance Light Repair Technician, Air Conditioning Technician, Automotive Drivability Technician		
<b>Pre-requisite:</b>	Automotive Introduction		
<b>Course Description:</b>	In this course the student will learn battery testing and maintenance. This course will cover electrical theory and Digital Volt Ohm Meter (DVOM) operation. Students will learn basic system checks using a DVOM. Students will learn to soldering techniques for wiring and other connections.		
<b>Instructional Philosophy:</b>	To provide a training program that is of merit both educationally and ethically while effectively providing the individual learner the opportunities, knowledge and skills necessary to succeed in the workplace as well as life.		
<b>Course Goals:</b>	Upon successful completion of this course, the student will be able to:		
	<b>Competencies:</b>		
	<b>Battery Maintenance</b>		
	Battery maintenance: Fundamentals		
	Inspecting & testing a battery		
	Cleaning & replacing a battery		
	Starting a vehicle with a discharged battery		
	Charging a battery		
	<b>Electrical Systems</b>		
	Electrical systems: Fundamentals		
	Using a DVOM to measure voltage		
	Using a DVOM to measure continuity		
	Checking alternators		
	Checking starter motors		
	Using a non-powered test light		
	Installing a solder-less terminal		
	Soldering an electrical connection		
	Soldering wires together		
	Checking & changing a headlight bulb		
	Checking & changing an exterior light bulb		
<b>Major Course Projects:</b>	Students will perform tasks relating to the Automotive Service Industry as per standards identified by the National Automotive Technicians Education Foundation (NATEF). Students will complete repair orders each day and will document completion of competencies on competency profiles tracking individual progress and accomplishment.		
<b>Project Outline:</b>	Projects will include performing tasks on mock ups, shop vehicles, and live work as student skills progress. These projects will reinforce classroom theory instruction and		

will require the student to consult industry service information during the course of task performance.

**Instructional Delivery Plan:**

The instruction for this course will be comprised of multiple methods designed to promote and accommodate different learning styles including classroom lecture, classroom demonstrations, shop demonstrations, hands on learning activities, classroom discussion, interactive media, textbook, computer based learning activities, research projects, guest speakers, student presentations, and interactive learning with CPS (Classroom Performance System). Students will be required to practice the skills associated with the instructional content and will be required to work independently and also in teams. Assignments will require students to use academic skills in math, science, and language arts.

**Assessment Plan:**

Students will be assessed according to three basic kinds of learning. Knowledge: Does the student possess the required knowledge to perform a specific competency? Skills: Does the student possess the necessary coordination to perform the task/competency? Attitude: Will the student perform the task/competency on the job after learning to do it? Students will also be assessed according to the basic work skills of attendance and promptness. Soft skills will be assessed in the Academic Career Center.

50%	Daily work- Performance of technical skills on job, work habits, safety, clean-up, participation
50%	Written assignment- Repair orders, textbook assignments, etc.

**Grading Scale:**

A	90-100	Exceeds expectations
B	80-89	Meets industry standards and expectations
C	70-79	Passing grade, but does not meet some standards
D	60-69	Passing, but only meets the minimum standards
F	Below 60	Failing, does not meet minimum standards

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**Alliance Credit Offered:**

**Industry Alignments:** ASE Certification, ODCTE Certification,

**End of Instruction Industry Assessment:** ASE Certification, ODCTE Certification,

**Resources:** Automotive Excellence Vol. 1 and Vol. 2  
Modern Automotive Technology  
Introduction to Automotive Service: Fundamental Concepts  
CDX Global Interactive Training  
Snap On Shop Key  
Alldata

**Attachments:** See Automotive Service Technology Task List Competency Handbook