



Course Title: Advanced Electrical and Electronic Systems
Course #: AUT 203

Credit Hours: 4
Semester: Spring 202
Cap: 10

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Office: Automotive Shop

Office Phone: 435-979-3799

Office Hours (face-to-face or online): Auto 11:30-12:00pm

Preferred Communication (email and/or text; will respond within 24 hours)

Modality (face-to-face, hybrid, or online): Hybrid

Class Location and Meeting Times (if face-to-face): Automotive Shop T/TR 8:30-11:30am

Meeting Hours and Online Hours (if hybrid): Hybrid

Required Materials: Computer needed: Laptop, desktop or tablet. Face coverings, automotive work shoes/boots, safety eyewear, NTU Automotive work shirt (Long or short sleeve), notebook, pen or pencil, RED pen

Textbooks: CDX Fundamentals of Automotive Technology ONLINE (Class code 28B22D)

Tools: Face coverings, automotive work shoes/boots, safety eyewear, NTU Automotive work shirt (Long or short sleeve), notebook, pen or pencil, RED pen

Laptop and Internet Access: Every student is required to own a laptop and have internet access.

Lab Fee (if applicable):

Mission, Vision, and Philosophy

Mission: Navajo Technical University honors Diné culture and language, while educating for the future.

Vision: Navajo Technical University provides an excellent educational experience in a supportive, culturally diverse environment, enabling all community members to grow intellectually, culturally, and economically.

Philosophy: Through the teachings of Nitsáhákees (thinking), Nahátá (planning), Íína (implementing), and Siihasin (reflection), students acquire quality education in diverse fields, while preserving cultural values and gaining economic opportunities.

Course Description

This online course will cover electrical and electronic principles. Such as Ohm's law and voltage drop. The electrical components and wiring. How to use a multimeter, automotive wiring diagrams in circuit diagnosis. Electrical circuit testing and key terms.

Course Objectives

After successfully completing this course:

1. Utilize Mitchel On Demand Shop Service Manual & Management System
2. Be able to identify Electrical System internal parts
3. Work with electrical tools and equipment, including DVOMs and test lights
4. Explore Shop Safety and the daily operation of an Automotive facility
5. Learn to read, interpret and follow electrical diagrams

Course Outcomes	Course Assessments
Explore a career in automotive electrical repair	Complete reading assignments, homework assignments, work book Assignment, online internet and classroom examinations, and. NATEF Task list projects
Discuss ASE Electrical Certification	
Discuss the use of automotive electrical tools, and specialized equipment	
Discuss Automotive Shop Electrical system safety practices.	
Documentation of Automotive service repair orders and use of computer systems to achieve this.	

Connections to Program Assessment (Course-Embedded Measures)

Course Activities

Week	Date	Class Topics/Reading Due	Assignments Due	Assessments
1	Jan 18-21	Chapter 54: Starting and Charging Systems		Ch 54 Quiz
	Jan 21	Last day to add/drop		
2	Jan 24-28	Chapter 54: Starting and Charging Systems	Ch 54 Quiz	Ch 54 Quiz
3	Jan 31-Feb 4	Chapter 54: Starting and Charging Systems	Ch 54 Quiz	Ch 54 Quiz
4	Feb 7-11	Chapter 55: Lighting Systems	Ch 55 Quiz	Ch 55 Quiz
5	Feb 14-18	Chapter 55: Lighting Systems	Ch 55 Quiz	Ch 55 Quiz
6	Feb 21-25	54-55 NATEF		
	Feb 25	Graduation Petition due		
7	Feb 28-Mar 4	Chapter 54-55: REVIEW		
8	Mar 7-11	Midterm		
	Mar 11	Midterm grades due		
9	Mar 14-18	Chapter 56: Network Communications and Body Accessories	Ch 56 Quiz	Ch 56 Quiz
10	Mar 21-25	Chapter 56: Network Communications and Body Accessories	Ch 56 Quiz	Ch 56 Quiz
	Mar 31	Last day to withdraw with "W"		
11	Mar 28-Apr 1	Chapter 57: Safety, Entertainment, and Antitheft Systems	Ch 57 Quiz	Ch 57 Quiz
12	Apr 4-8	Chapter 57: Safety, Entertainment, and Antitheft Systems	Ch 57 Quiz	Ch 57 Quiz
13	Apr 11-15	NATEF and Chapter review		
14	Apr 18-22	NATEF and Chapter review		
15	Apr 25-29	NATEF and Chapter review		

16	May 2-6	NATEF and Chapter review		
17	May 9-12	Finals	Finals	
	May 12	Grades due to the Registrar		
	May 13	Graduation		

AUT 203 Advanced Electrical and Electronic Systems		
Chapter	Tasksheets	
Ch.54	C1002 - Demonstrate knowledge of an automatic idle-stop/start-stop system.	
Ch.54	C312 - Remove and install starter in a vehicle.	
Ch.54	C309 - Perform starter current draw tests; determine needed action.	
Ch.54	C310 - Perform starter circuit voltage drop tests; determine needed action.	
Ch.54	C314 - Differentiate between electrical and engine mechanical problems that cause a slow-crank or no-crank condition.	
Ch.54	C311 - Inspect and test starter relays and solenoids; determine needed action.	
Ch.54	C316 - Diagnose (troubleshoot) charging system for the cause of undercharge, no-charge, or overcharge conditions.	
Ch.54	C319 - Perform charging circuit voltage drop tests; determine needed action.	
Ch.54	C317 - Inspect, adjust, and/or replace generator (alternator) drive belts; check pulleys and tensioners for wear; check pulley and belt alignment.	
Ch.54	C318 - Remove, inspect, and/or replace generator (alternator).	
Ch.54	C315 - Perform charging system output test; determine needed action.	
Ch.55	C956 - Inspect interior and exterior lamps and sockets including headlights and auxiliary lights (fog lights/driving lights); replace as needed.	
Ch.55	C320 - Diagnose (troubleshoot) the cause of brighter-than-normal, intermittent, dim, or no light operation; determine needed action.	
Ch.55	C646 - Inspect and test gauges and gauge sending units for causes of abnormal gauge readings; determine needed action.	
Ch.55	C321 - Aim headlights.	
Ch.55	C325 - Diagnose (troubleshoot) the cause of incorrect operation of warning devices and other driver information systems; determine needed action.	
Ch.55	C564 - Identify system voltage and safety precautions associated with high intensity discharge headlights.	

Grading Plan

Homework: 10%

Class Participation: 25%

NATEF Tasks: 35%

Quizzes: 10%

Mid-term: 10%

Final Exam:10%

A = 100-90%

B = 89-80%

C = 79-70%

D = 69-60%

F = 59% or less

Grading Policy

Students must do their own work. Cheating and plagiarism are strictly forbidden. Cheating includes (but is not limited to) plagiarism, submission of work that is not one's own, submission or use of falsified data, unauthorized access to exams or assignments, use of unauthorized material during an exam, or supplying or communicating unauthorized information for assignments or exams.

Participation

Students are expected to attend and participate in all class activities. Points will be given to students who actively participate in class activities including guest speakers, field trips, laboratories, and all other classroom events.

Cell phone and headphone use

Please turn cell phones off **before** coming to class. Cell phone courtesy is essential to quality classroom learning. Headphones must be removed before coming to class.

Attendance Policy

Students are expected to attend all class sessions. If more than ten minutes late, students will be counted as absent. A percentage of the student's grade will be based on class attendance and participation. Absence from class, regardless of the reason, does not relieve the student of responsibility to complete all course work by required deadlines. Furthermore, it is the student's responsibility to obtain notes, handouts, and any other information covered when absent from class and to arrange to make up any in-class assignments or tests if permitted by the instructor. Incomplete or missing assignments will necessarily affect the student's grades. Instructors will report excessive and/or unexplained absences to the Counseling Department for investigation and potential intervention. **Instructors may drop students from the class after three (3) absences unless prior arrangements are made with the instructor to make up work and the instructor deems any excuse acceptable.**

Study Time Outside of Class for Face-to-Face Courses

For every credit hour in class, a student is expected to spend two hours outside of class studying course materials.

Study Time for Hybrid or Blended Courses

For a hybrid or blended course of one credit hour, a student is expected to spend three hours per week studying course materials.

Study Time for Online Courses

For an online course of one credit hour, a student is expected to spend four hours per week studying course materials.

Academic Integrity

Integrity (honesty) is expected of every student in all academic work. The guiding principle of academic integrity is that a student's submitted work must be the student's own. Students who engage in academic dishonesty diminish their education and bring discredit to the University community. Avoid situations

likely to compromise academic integrity such as: cheating, facilitating academic dishonesty, and plagiarism; modifying academic work to obtain additional credit in the same class unless approved in advance by the instructor, failure to observe rules of academic integrity established by the instructor. **The use of another person's ideas or work claimed as your own without acknowledging the original source is known as plagiarism and is prohibited.**

Diné Philosophy of Education

The Diné Philosophy of Education (DPE) is incorporated into every class for students to become aware of and to understand the significance of the four Diné philosophical elements, including its affiliation with the four directions, four sacred mountains, the four set of thought processes and so forth: Nitsáhákees, Nahát'á, Ílna and Siih Hasin which are essential and relevant to self-identity, respect and wisdom to achieve career goals successfully.

At NTU's Zuni Campus, the A:shiwí Philosophy of Education offers essential elements for helping students develop Indigenous and Western understandings. Yam de bena: dap haydoshna: akkya hon detsemak a:wannikwa da: hon de:tsemak a:ts'umme. *Our language and ceremonies allow our people to maintain strength and knowledge.* A:shiwí core values of hon i:yyułashik'yanna:wa (respect), hon delank'oha:willa:wa (kindness and empathy), hon i:yyayumola:wa (honesty and trustworthiness), and hon kohoł lewuna:wediyahnan, wan hon kela i:tsemanna (think critically) are central to attaining strength and knowledge. They help learners develop positive self-identity, respect, kindness, and critical thinking skills to achieve life goals successfully.

Students with Disabilities

Navajo Technical University is committed to serving all students in a non-discriminatory and accommodating manner. Any student who feels that she or he may need special accommodations should contact the Accommodations Office (<http://www.navajotech.edu/student-services#accomodations-services>) in accordance with the university's Disability Accommodations Policy (see http://www.navajotech.edu/images/about/policiesDocs/Disability_ Exhibit-A_ 6-26-2018.pdf).

Email Address

Students are required to use NTU's email address for all communications with faculty and staff.

Final Exam Date: May 9-12