

**Transportation, Distribution & Logistics Career Cluster
Non-Structural Analysis and Damage Repair II
Course Number: 47.56900**

Course Description:

Non Structural Analysis and Damage Repair II is the third of three courses in the Non Structural Analysis and Damage Repair pathway that will teach students the skills and knowledge that can lead to a career in the automotive body repair industry. Damage Analysis, Estimating, and Customer Service (DAECS) provides students with special knowledge needed to assess collision damage, estimate repair costs, and work with vehicle owners. Students completing the Non-Structural pathway are eligible to take the ASE written examination for Non-Structural Analysis and Damage Repair. The prerequisite for this course is Non-Structural Analysis and Damage Repair I.

Course Standard 1

TDL-NSADR2-1

The following standard is included in all CTAE courses adopted for the Career Cluster/Pathways. Teachers should incorporate the elements of this standard into lesson plans during the course. The topics listed for each element of the standard may be addressed in differentiated instruction matching the content of each course. These elements may also be addressed with specific lessons from a variety of resources. This content is not to be treated as a unit or separate body of knowledge but rather integrated into class activities as applications of the concept.

Standard: Demonstrate employability skills required by business and industry.

The following elements should be integrated throughout the content of this course.

1.1 Communicate effectively through writing, speaking, listening, reading, and interpersonal abilities.

Person-to-Person Etiquette	Telephone and Email Etiquette	Cell Phone and Internet Etiquette	Communicating At Work	Listening
Interacting with Your Boss	Telephone Conversations	Using Blogs	Improving Communication Skills	Reasons, Benefits, and Barriers
Interacting with Subordinates	Barriers to Phone conversations	Using Social Media	Effective Oral Communication	Listening Strategies
Interacting with Co-workers	Making and Returning Calls		Effective Written Communication	Ways We Filter What We Hear
Interacting with Suppliers	Making Cold Calls		Effective Nonverbal Skills	Developing a Listening Attitude
	Handling Conference Calls		Effective Word Use	Show You Are Listening
	Handling Unsolicited Calls		Giving and Receiving Feedback	Asking Questions
				Obtaining Feedback
				Getting Others to Listen

Nonverbal Communication	Written Communication	Speaking	Applications and Effective Résumés
Communicating Nonverbally	Writing Documents	Using Language Carefully	Completing a Job Application
Reading Body Language and mixed Messages	Constructive Criticism in Writing	One-on-One Conversations	Writing a Cover Letter
Matching Verbal and Nonverbal communication		Small Group Communication	Things to Include in a Résumé

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Improving Nonverbal Indicators		Large Group Communication	Selling Yourself in a Résumé
Nonverbal Feedback		Making Speeches	Terms to Use in a Résumé
Showing Confidence Nonverbally		Involving the Audience	Describing Your Job Strengths
Showing Assertiveness		Answering Questions	Organizing Your Résumé
		Visual and Media Aids	Writing an Electronic Résumé
		Errors in Presentation	Dressing Up Your Résumé

1.2 Demonstrate creativity by asking challenging questions and applying innovative procedures and methods.

Teamwork and Problem Solving	Meeting Etiquette
Thinking Creatively	Preparation and Participation in Meetings
Taking Risks	Conducting Two-Person or Large Group Meetings
Building Team Communication	Inviting and Introducing Speakers
	Facilitating Discussions and Closing
	Preparing Visual Aids
	Virtual Meetings

1.3 Exhibit critical thinking and problem solving skills to locate, analyze and apply information in career planning and employment situations.

Problem Solving	Customer Service	The Application Process	Interviewing Skills	Finding the Right Job
Transferable Job Skills	Gaining Trust and Interacting with Customers	Providing Information, Accuracy and Double Checking	Preparing for an Interview	Locating Jobs and Networking
Becoming a Problem Solver	Learning and Giving Customers What They Want	Online Application Process	Questions to Ask in an Interview	Job Shopping Online
Identifying a Problem	Keeping Customers Coming Back	Following Up After Submitting an Application	Things to Include in a Career Portfolio	Job Search Websites
Becoming a Critical Thinker	Seeing the Customer's Point	Effective Résumés:	Traits Employers are Seeking	Participation in Job Fairs
Managing	Selling Yourself and the Company	Matching Your Talents to a Job	Considerations Before Taking a Job	Searching the Classified Ads
	Handling Customer Complaints	When a Résumé Should be Used		Using Employment Agencies
	Strategies for Customer Service			Landing an Internship
				Staying Motivated to Search

1.4 Model work readiness traits required for success in the workplace including integrity, honesty, accountability, punctuality, time management, and respect for diversity.

Workplace Ethics	Personal Characteristics	Employer Expectations	Business Etiquette	Communicating at Work
Demonstrating Good Work Ethic	Demonstrating a Good Attitude	Behaviors Employers Expect	Language and Behavior	Handling Anger
Behaving Appropriately	Gaining and Showing Respect	Objectionable Behaviors	Keeping Information Confidential	Dealing with Difficult Coworkers
Maintaining Honesty	Demonstrating Responsibility	Establishing Credibility	Avoiding Gossip	Dealing with a Difficult Boss
Playing Fair	Showing Dependability	Demonstrating Your Skills	Appropriate Work Email	Dealing with Difficult Customers

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Using Ethical Language	Being Courteous	Building Work Relationships	Cell Phone Etiquette	Dealing with Conflict
Showing Responsibility	Gaining Coworkers' Trust		Appropriate Work Texting	
Reducing Harassment	Persevering		Understanding Copyright	
Respecting Diversity	Handling Criticism		Social Networking	
Making Truthfulness a Habit	Showing Professionalism			
Leaving a Job Ethically				

1.5 Apply the appropriate skill sets to be productive in a changing, technological, diverse workplace to be able to work independently and apply team work skills.

Expected Work Traits	Teamwork	Time Management
Demonstrating Responsibility	Teamwork Skills	Managing Time
Dealing with Information Overload	Reasons Companies Use Teams	Putting First Things First
Transferable Job Skills	Decisions Teams Make	Juggling Many Priorities
Managing Change	Team Responsibilities	Overcoming Procrastination
Adopting a New Technology	Problems That Affect Teams	Organizing Workspace and Tasks
	Expressing Yourself on a Team	Staying Organized
	Giving and Receiving Constructive Criticism	Finding More Time
		Managing Projects
		Prioritizing Personal and Work Life

1.6 Present a professional image through appearance, behavior and language.

On-the-Job Etiquette	Person-to-Person Etiquette	Communication Etiquette	Presenting Yourself
Using Professional Manners	Meeting Business Acquaintances	Creating a Good Impression	Looking Professional
Introducing People	Meeting People for the First Time	Keeping Phone Calls Professional	Dressing for Success
Appropriate Dress	Showing Politeness	Proper Use of Work Email	Showing a Professional Attitude
Business Meal Functions		Proper Use of Cell Phone	Using Good Posture
Behavior at Work Parties		Proper Use in Texting	Presenting Yourself to Associates
Behavior at Conventions			Accepting Criticism
International Etiquette			Demonstrating Leadership
Cross-Cultural Etiquette			
Working in a Cubicle			

Support of CTAE Foundation Course Standards and Georgia Standards of Excellence L9-10RST 1-10 and L9-10WHST 1-10:

Georgia Standards of Excellence ELA/Literacy standards have been written specifically for technical subjects and have been adopted as part of the official standards for all CTAE courses.

Course Standard 2

TDL-NSADR2-2

Demonstrate preparation by properly inspecting, removing, storing, and installing components.

- 2.1 Review damage report and analyze damage to determine appropriate methods for overall repair; develop and document a repair plan. HP-I
- 2.2 Inspect, remove, label, store, and reinstall exterior trim and moldings. HP-I
- 2.3 Inspect, remove, label, store, and reinstall interior trim and components. HP-I
- 2.4 Inspect, remove, label, store, and reinstall body panels and components that may interfere with or be damaged during repair. HP-I
- 2.5 Protect panels, glass, interior parts, and other vehicles adjacent to the repair area. HP-I
- 2.6 Soap and water wash entire vehicle; complete pre-repair inspection checklist. HP-I
- 2.7 Prepare damaged area using water-based and solvent-based cleaners. HP-I
- 2.8 Remove corrosion protection, undercoatings, sealers, and other protective coatings as necessary to perform repairs. HP-I
- 2.9 Inspect, remove, and reinstall repairable plastics and other components for off-vehicle repair. HP-I

Course Standard 3

TDL-NSADR2-3

Demonstrate outer body panel repairs, replacements, and adjustments.

- 3.1 Determine the extent of direct and indirect/hidden damage and direction of impact; develop and document a repair plan. HP-I
- 3.2 Inspect, remove, replace, and align hood, hood hinges, and hood latch. HP-I
- 3.3 Inspect, remove, replace, and align deck lid, lid hinges, and lid latch. HP-I
- 3.4 Inspect, remove, replace, and align doors, latches, hinges, and related hardware. HP-I
- 3.5 Inspect, remove, replace, and align bumper bars, covers, reinforcement, guards, isolators, and mounting hardware. HP-I
- 3.6 Inspect, remove, replace and align fenders, and related panels. HP-I
- 3.7 Restore corrosion protection. HP-I

Course Standard 4

TDL-NSADR2-4

Identify and demonstrate repairing metal finishing and body filling.

- 4.1 Remove paint from the damaged area of a body panel. HP-I
- 4.2 Locate and repair surface irregularities on a damaged body panel. HP-I
- 4.3 Demonstrate hammer and dolly techniques. HP-I
- 4.4 Heat shrink stretched panel areas to proper contour. HP-I.
- 4.5 Cold shrink stretched panel areas to proper contour. HP-I
- 4.6 Prepare and apply body filler. HP-I

Course Standard 5

TDL-NSADR2-5

Demonstrate moveable glass and hardware repair and replacement.

- 5.1 Inspect, adjust, repair or replace window regulators, run channels, glass, power mechanisms, and related controls. HP-I

Course Standard 6

TDL-NSADR2-6

Demonstrate metal welding and cutting related to vehicle repair.

- 6.1 Identify weldable and non-weldable substrates used in vehicle construction. HP-I
- 6.2 Weld and cut high-strength steel and other steels. HP-I
- 6.3 Determine the correct gas metal arc welding (GMAW) metal inert gas (MIG) welder type, electrode/wire type, diameter, and gas to be used in a specific welding situation. HP-I
- 6.4 Set up and adjust the GMAW (MIG) welder to "tune" for proper electrode stick out, voltage, polarity, flow rate, and wire-feed speed required for the substrate being welded. HP-I
- 6.5 Store, handle, and install high-pressure gas cylinders. HP-I
- 6.6 Determine location and attach work clamp (ground). HP-I
- 6.7 Use the proper angle of the gun to the joint and direction of gun travel for the type of weld being made in the flat, horizontal, vertical, and overhead positions. HP-I
- 6.8 Protect adjacent panels, glass, vehicle interior, etc. from welding and cutting operations. HP-I
- 6.9 Protect computers and other electronic control modules during welding procedures. HP-I
- 6.10 Clean and prepare the metal to be welded, assure good metal fit-up, and apply weld-through primer, if necessary, clamp or tack as required. HP-I
- 6.11 Determine the joint type (butt weld with backing, lap, etc.) for weld being made. HP-I
- 6.12 Determine the type of weld (continuous, stitch weld, plug, etc.) for each specific welding operation. HP-I
- 6.13 Perform the following welds: continuous, plug, butt weld with and without backing, fillet, etc. HP-I
- 6.14 Perform visual and destructive tests on each weld type. HP-I
- 6.15 Identify the causes of various welding defects; make necessary adjustments. HP-I
- 6.16 Identify cause of contact tip burn-back and failure of wire to feed; make necessary adjustments. HP-I
- 6.17 Identify cutting process for different substrates and locations; perform cutting operation. HP-I

Course Standard 7

TDL-NSADR2-7

Demonstrate vehicle repairs using plastics and adhesives

- 7.1 Identify the types of plastics; determine repairability. HP-I
- 7.2 Clean and prepare the surface of plastic parts; identify the types of plastic repair procedures. HP-I
- 7.3 Repair rigid, semi-rigid, or flexible plastic panels. HP-I

Course Standard 8

TDL-NSADR2-8

Examine how SkillsUSA is a co-curricular part of career and technical education through leadership development, school and community service projects, and competitive events.

- 8.1 Explain the purpose, mission, objectives, motto, colors, official dress and other distinguishing characteristics of SkillsUSA.
- 8.2 Explain how participation in SkillsUSA can promote lifelong responsibility for community service, professional growth and development.
- 8.3 Explore the impact and opportunities that SkillsUSA can develop to bring business and industry together with education in a positive working relationship through innovative leadership and career development programs.
- 8.4 Explore the local, state, and national opportunities available to students through participation in SkillsUSA, including but not limited to conferences, competitions, community service, philanthropy, and other SkillsUSA activities.