

SYLLABUS

DATE OF LAST REVIEW: 09/2019

CIP CODE: 47.0603

SEMESTER: Departmental Syllabus

COURSE TITLE: Non-Structural Analysis and Damage Repair 1

COURSE NUMBER: ACRT0120

CREDIT HOURS: 4

INSTRUCTOR: Departmental Syllabus

OFFICE LOCATION: Departmental Syllabus

OFFICE HOURS: Departmental Syllabus

TELEPHONE: Departmental Syllabus

EMAIL: KCKCC issued email accounts are the official means for electronically communicating with our students.

PREREQUISITE(S): ACRT0100

REQUIRED TEXT AND MATERIALS: Please check with the KCKCC bookstore, <http://www.kckccbookstore.com/>, for the required texts for your particular class.

COURSE DESCRIPTION: Upon completion of this course the student will be able to use basic metal working skills to repair damaged panels back to their original shape. The removal, replacement and adjustment of exterior panels and welding and cutting procedures are areas that the student becomes familiar with.

METHOD OF INSTRUCTION: A variety of instructional methods may be used depending on content area. These include but are not limited to lecture, multimedia, cooperative/collaborative learning, labs and demonstrations, projects and presentations, speeches, debates, panels, conferencing, performances, and learning experiences outside the classroom. Methodology will be selected to best meet student needs.

COURSE OUTLINE:

- I. Preparation
- II. Outer Body Panel Repairs, Replacements, and Adjustments
- III. Metal Finishing and Body Filling
- IV. Metal The student will be able to welding and Cutting
- V. Plastics and Adhesives

EXPECTED LEARNER OUTCOMES:

- A. The student will be able to explore the components of safety pertaining to auto collision and repair
- B. The student will be able to explore the parts and construction of vehicles
- C. The student will be able to explore opportunities in the auto collision industry
- D. The student will be able to identify metal straightening techniques
- E. The student will be able to identify the application and use of body fillers
- F. The student will be able to demonstrate proper use, set-up and storage of welding equipment
- G. The student will be able to distinguish between weldable and non-weldable materials
- H. The student will be able to demonstrate fundamental industry standard recommended welds
- I. The student will be able to identify plastics and adhesives used in automotive industry
- J. The student will be able to explain the general purpose of damage, estimation and repair orders
- K. The student will be able to explore the processes required for outer body panel repairs, replacements and adjustments
- L. The student will be able to demonstrate fundamental cutting procedures

COURSE COMPETENCIES:

Upon successful completion of this course: in the classroom or classroom shop setting and by meeting any institution-required NATEF Tasks from the criteria outlined below. NATEF Guidelines of: 95% of HP-I items must be taught in the curriculum; 90% of HP-G items must be taught in the curriculum

The student will be able to explore the components of safety pertaining to auto collision and repair

(Linked External Standards 4.A Safety Precautions)

- 1. The student will be able to identify safety standards for the collision repair industry
- 2. The student will be able to identify safety equipment
- 3. The student will be able to identify hazardous materials related to the collision repair industry
- 4. The student will be able to identify and take necessary precautions with hazardous operations and materials according to federal, state, and local regulations. (HP-I)(4.A.1)(EDS02 module 1 REF01 module 4 REF03 modules 2,4 WKR01 module3)
- 5. The student will be able to identify safety and personal health hazards according to OSHA guidelines and the Right to Know Law. (HP-I)(4.A.2)(WKR01 module1)

The student will be able to explore the parts and construction of vehicles

- 6. The student will be able to identify differences between unibody and frame vehicles
- 7. The student will be able to identify differences between various powertrain configurations.
- 8. The student will be able to identify the major body parts and components of a vehicle.

The student will be able to explore opportunities in the auto collision industry

9. The student will be able to discuss different employment opportunities needed for auto collision repair industry
10. The student will be able to discuss other related job opportunities needed for the auto collision repair industry

The student will be able to identify metal straightening techniques

(Linked External Standards 2.B Outer Body Panel Repairs, Replacements, and Adjustments. 2.C Metal Finishing and Body Filling)

11. The student will be able to determine the extent of direct and indirect damage and direction of impact; develop and document a repair plan. (HP-I)(2.B.1)(DAM01 v.2.4 modules 1,2 DAM01 v.2.5 modules 1,2,3,4,EXT01 module 01)
12. The student will be able to remove paint from the damaged area of a body panel. (HP-I)(2.C.1)(EDS01 module 3 STS01 module 2)
13. The student will be able to locate and reduce surface irregularities on a damaged body panel. (HP-I)(2.C.2)(DAM02 v.2.1 module 3 DAM02 v.2.2 module 2 EDS01 module 2,3,4 FCR01 v.2.1 module 2 FCR01 v.2.2 module 3 STS01 module 1,2)
14. The student will be able to demonstrate hammer and dolly techniques. (HP-I)(2.C.3)(EDS01 module 2 STS01 module 2)
15. The student will be able to determine the proper metal finishing techniques for aluminum. (HP-G)(2.C.9)(DAM 05 module 2 STA01 modules 2,3)
16. The student will be able to determine the extent of damage to aluminum body panels; repair or replace. (HP-G) (2.B.3)(DAM05 module 2 PRA 01 modules 1,2,3,4,5 STA01 modules 2,3)

The student will be able to identify the application and use of body fillers

(Linked External Standards 2.C Metal Finishing and Body Filling)

17. The student will be able to remove paint from the damaged area of a body panel. (HP-I)(2.C.1)(EDS01 module 3 STS01 module 2)
18. The student will be able to locate and reduce surface irregularities on a damaged body panel. (HP-I)(2.C.2) (DAM02 v.2.1 module 3 DAM02 v.2.2 module 2 EDS01 module 2,3,4 FCR01 v.2.1 module 2 FCR01 v.2.2 module 3 STS01 module 1,2)
19. The student will be able to demonstrate hammer and dolly techniques. (HP-I)(2.C.3)(EDS01 module 2 STS01 module 2)
20. The student will be able to mix body filler. (HP-I)(2.C.6)(EDS01 module 3 STS01 module 2)
21. The student will be able to apply body filler; shape during curing. (HP-I)(2.C.7)(EDS01 module 3 STS01 module 2)
22. The student will be able to rough sand cured body filler to contour; finish sand. (HP-I)(2.C.8)(EDS01 module 2 STS01 module 2)

The student will be able to demonstrate proper use, set-up and storage of welding equipment

(Linked External Standards 2.E Metal Welding and Cutting)

23. The student will be able to determine the correct GMAW (MIG) welder type, electrode, wire type, diameter, and gas to be used in a specific welding situation. (HP-I)(2.E.4)(EXT02 module 1 WCS01 module 1)
24. The student will be able to set up and adjust the GMAW (MIG) welder to "tune" for proper electrode stickout, voltage, polarity, flow rate, and wire-feed speed required for the material being welded. (HP-I)(2.E.5)(WCS01 module 1)

25. The student will be able to store, handle, and install high-pressure gas cylinders. (HP-I)(2.E.6)(WCS01 module 1)
26. The student will be able to determine work clamp (ground) location and attach. (HP-I)(2.E.7)(WCS01 v.1.2 module 1)
27. The student will be able to identify different methods of attaching non-structural components (squeeze type resistant spot welds (STRSW), riveting, non-structural adhesive, silicon bronze, etc.) (HP-G)(2.E.19)(ADH01 v.1.2 module 1 ADH01 V.1.3 modules 1,2,4 EXT02 modules 1,2,3,4,5 WCS04 v.2.1 modules 1,2,3 WCS04 v.2.2 modules 1,2,3,4)

The student will be able to distinguish between weldable and non-weldable materials
(Linked External Standards 2.E Metal Welding and Cutting)

28. The student will be able to identify weldable and non-weldable materials used in collision repair. (HP-I)(2.E.1) EXT02 module 1 WCS01 module 1)

The student will be able to demonstrate fundamental industry standard recommended welds

(Linked External Standards 2.E Metal Welding and Cutting)

29. The student will be able to weld and cut high-strength steel and other steels. (HP-I)(2.E.2)(EXT02 module 1 WCS01 v.1.2 modules 1,2,3,4 WCS01v.1.3 modules 1,2,3,4,5)
30. The student will be able to determine the correct GMAW (MIG) welder type, electrode, wire type, diameter, and gas to be used in a specific welding situation. (HP-I)(2.E.4)(EXT02 module 1 WCS01 module 1)
31. The student will be able to set up and adjust the GMAW (MIG) welder to "tune" for proper electrode stickout, voltage, polarity, flow rate, and wire-feed speed required for the material being welded. (HP-I)(2.E.5)(WCS01 module 1)
32. The student will be able to store, handle, and install high-pressure gas cylinders. (HP-I)(2.E.6)(WCS01 module 1)
33. The student will be able to determine work clamp (ground) location and attach. (HP-I)(2.E.7)(WCS01 v.1.2 module 1)
34. The student will be able to 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)(2.E.8) (WCS01 v.1.2 module 1 WCS01 v.1.3 modules 1,2,3,4,5)
35. The student will be able to clean and prepare the metal to be welded, assure good metal fit-up, apply weld-through primer if necessary, and clamp as required. (HP-I)(2.E.11) (WCS01 v.1.2 module 1)
36. The student will be able to determine the joint type (butt weld with backing, lap, etc.) for weld being made. (HP-I) (2.E.12)(WCS02 modules 1,2,3,4,5)
37. The student will be able to determine the type of weld (continuous, butt weld with backing, plug, etc.) for each specific welding operation. (HP-I)(2.E.13)(WCS02 modules 1,2,3,4,5)
38. The student will be able to perform the following welds: continuous, stitch, tack, plug, butt weld with and without backing, and fillet. (HP-I)(2.E.14)(WCS01 v.1.2 modules 2,3,4)
39. The student will be able to identify the causes of various welding defects; make necessary adjustments. (HP-I)(2.E.16)(WCS01 v.1.2 module 1)
40. The student will be able to identify cause of contact tip burn-back and failure of wire to feed; make necessary adjustments. (HP-I)(2.E.17)(WCS01 module 1)

The student will be able to identify plastics and adhesives used in automotive industry
(Linked External Standards 2.F Plastics and Adhesives)

41. The student will be able to identify the types of plastics; determine repair ability. (HP-I)(2.F.1)(DAM02 module 2 PLA01 modules 1,3 PLA02 modules 1,4)
42. The student will be able to identify the types of plastic repair procedures; clean and prepare the surface of plastic parts. (HP-I)(2.F.2)(PLA01 modules 1,2 PLA 02 modules 1,2)

The student will be able to explain the general purpose of damage, estimation and repair orders

(Linked External Standards 2.A Preparation)

43. The student will be able to review damage report and analyze damage to determine appropriate methods for overall repair; develop and document a repair plan. (HP-I)(2.A.1)(DAM01 v.2.4 modules 1,2 DAM01 v.2.5 modules 1,2,3,4,5 EXT01 module 1)

The student will be able to explore the processes required for outer body panel repairs, replacements and adjustments

(Linked External Standards 2.B Outer Body Panel Repairs, Replacements, and Adjustments)

44. The student will be able to determine the extent of direct and indirect damage and direction of impact; develop and document a repair plan. (HP-I)(2.B.1)(DAM01 v.2.4 modules 1,2 DAM01 v.2.5 modules 1,2,3,4,EXT01 module 01)
45. The student will be able to inspect, remove and replace bolted, bonded, and welded steel panel or panel assemblies. (HP-I)(2.B.2)(ADH01 v.1.2 module 1 ADH01 v.1.3 modules 1,2,3 DAM02 v.2.1 modules 1,2,3 DAM02 v.2.2 module 2 EXT01 modules 1,2,3,4 EXT02 modules 1,2,3,4,5)
46. The student will be able to determine the extent of damage to aluminum body panels; repair or replace. (HP-G)(2.B.3)(DAM05 module 2 PRA 01 modules 1,2,3,4,5 STA01 modules 2,3)
47. The student will be able to inspect, remove, replace, and align hood, hood hinges, and hood latch. (HP-I)(2.B.4)(DAM02 v.2.1 module 3 DAM02 v.2.2 module 2 EXT01 module 2)
48. The student will be able to inspect, remove, replace, and align deck lid, lid hinges, and lid latch. (HP-I)(2.B.5)(DAM04 module 3 EXT01 module 4)
49. The student will be able to inspect, remove, replace, and align doors, tailgates, hatches, lift gates, latches, hinges, and related hardware. (HP-I)(2.B.6)(DAM04 modules 2,3 EXT01 modules 3,4 EXT02 module 2)
50. The student will be able to inspect, remove, replace, and align bumper bars, covers, reinforcement, guards, isolators, and mounting hardware. (HP-I)(2.B.7)(DAM02 module 2 EXT01 module 2 EXT02 module 5)
51. The student will be able to inspect, remove, replace and align front fenders, headers, and other panels. (HP-I)(2.B.8)(DAM02 v.2.1 module 3 DAM02 v.2.2 module 2 EXT01 module 2 EXT02 module 5)

The student will be able to demonstrate fundamental cutting procedures

(Linked External Standards 2.E Metal Welding and Cutting)

52. The student will be able to weld and cut high-strength steel and other steels. (HP-I)(2.E.2)(EXT02 module 1 WCS01 v.1.2 modules 1,2,3,4 WCS01v.1.3 modules 1,2,3,4,5)
53. The student will be able to weld and cut aluminum. (HP-G)(2.E.3)(WCS01 modules 1,2)
54. The student will be able to store, handle, and install high-pressure gas cylinders. (HP-I)(2.E.6)(WCS01 module 1)
55. The student will be able to identify cutting process for different materials and locations perform cutting operation. (HP-I)(2.E.18)(WCS05 module 4)

ASSESSMENT OF LEARNER OUTCOMES:

Student progress is evaluated by means that include, but are not limited to, exams, written assignments, and class participation.

Attendance: Attendance will be in accordance with the certifying agency's requirements.

SPECIAL NOTES:

Safety: Attendance is critical throughout the safety instructions and quizzes. Students must complete all of the safety training before the student can advance or go on to the next course.

Caveats:

1. Safety glasses with side shields are required to be worn during lab activities for this course. This is in compliance with accepted eye protection practices and Kansas State Law (K.S.A. 72-5207). Safety glasses must meet American National Standards Institute Z87.1 specifications. (NOTE: Most prescription eyewear does not meet ANSI Z87.1. Students who wear prescription glasses must: a) Provide evidence that existing eyewear meets ANSI Z87.1, or b) Wear cover goggles (if allowable), or c) Purchase and wear ANSI Z87.1 prescription eyewear.
2. Lab Guidelines: In order to assist with the safe and efficient operation of the automotive lab area, students are expected to be familiar with and adhere to the Automotive Student Lab Guidelines.

This syllabus is subject to change at the discretion of the instructor. Material included is intended to provide an outline of the course and rules that the instructor will adhere to in evaluating the student's progress. However, this syllabus is not intended to be a legal contract. Questions regarding the syllabus are welcome any time.

Kansas City Kansas Community College is committed to an appreciation of diversity with respect for the differences among the diverse groups comprising our students, faculty, and staff that is free of bigotry and discrimination. Kansas City Kansas Community College is committed to providing a multicultural education and environment that reflects and respects diversity and that seeks to increase understanding.

Kansas City Kansas Community College offers equal educational opportunity to all students as well as serving as an equal opportunity employer for all personnel. Various laws, including Title IX of the Educational Amendments of 1972, require the college's policy on non-discrimination

be administered without regard to race, color, age, sex, religion, national origin, physical handicap, or veteran status and that such policy be made known.

Kansas City Kansas Community College complies with the Americans with Disabilities Act. If you need accommodations due to a documented disability, please contact the Director of the Academic Resource Center, in Rm. 3354 or call at: 913 288-7670 V/TDD.

All enrolled students at Kansas City Kansas Community College are subject to follow all rules, conditions, policies and procedures as described in both the Student Code of Conduct as well as the Student Handbook. All Students are expected to review both of these documents and to understand their responsibilities with regard to academic conduct and policies. The Student Code of Conduct and the Student Handbook can be found on the KCKCC website.

