



### Outcome-based 18/FA Course Syllabus

*Course Rubric Number Section:* ABDR 1203 2002  
*Lecture-Lab-Credit:* 1-2-2  
*CIP Code:* 47.0603  
*Course Title:* Vehicle Design and Structural Analysis  
*Course Description:* An introduction to the collision repair industry with emphasis on safety, professionalism, and vehicle structural design.  
*Prerequisites:*  
*Co-requisites:*  
*Course Meets:* 200F 109 LEC M 08:00AM 09:00AM 200F 112 LAB F 08:00AM 10:00AM  
  
*Instructor:* Jose Vasquez  
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*Building & Office Room Number:* Building F Rm. 105  
*Office Hours:* Mon: 10am-4pm, Wed: 1pm-4pm, Fri: 1pm-4pm

<b>Approved by:</b>		<b>Date:</b>	
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#### Course Outcomes

- CO1:** Identify the safe use of tools
- CO2:** Identify the safe use of equipment
- CO3:** Demonstrate metric measuring competencies
- CO4:** Demonstrate Society of Automotive Engineers (SAE) measuring competencies
- CO5:** Demonstrate shop safety practices

#### TSTC Grading Policy

(Grades for courses must be C or better)

Grade	Percent	Description	Grade Points
A	90-100	Excellent/Superior Performance Level	4
B	80-89	Above Required Performance Level	3
C	70-79	Minimum Required Performance Level	2
D	60-69	Below Required Performance Level	1
F	Below 60	Failure to meet Performance Requirements	0
IP	--	In Progress	
W	--	Withdrawal	0
CR	--	Credit	0
AUD	--	Audit of Course	0

See College Catalog for complete descriptions.

#### Competencies Rating Scale

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Rating Scale Key			
6	90+	Proficient	Student consistently performs the task accurately to industry standards without supervision.
5	80-89	Proficient	Student performs the task to industry standards with no supervision.
4	70-79	Proficient	Student performs the task to industry standards with little supervision. This is the minimum performance rating for STAR skill completion.
3	60-69	Exposed/Not Proficient	Student has been introduced to the task and can perform some of the tasks to industry standards.
2	50-59	Exposed/Not Proficient	Student has been introduced to the task, but cannot perform the task to industry standards.
1	0-49		Student was absent or did not complete assignment.

## Campus Standard Policies

The [Student Handbook](#) contains valuable information on campus policies and procedures.

- Student Code of Conduct
- Student Drug and Alcohol Testing Policy
- Plagiarism
- Student Grievances and Complaints

## Disability Services

Any student who, because of a disability, may require special accommodations in order to meet the course requirements, should contact the Disability Services office, as soon as possible, to make necessary arrangements. Please note that instructors are not allowed to provide classroom accommodation to a student until appropriate verification from the Disability Services office has been provided.

### Abilene Campus

Susan Hash  
Testing and Support Services  
Abilene Main Campus Bldg. Rm. 112  
325-734-3641

### Fort Bend Campus

Schauna Boynton  
Brazos Center Rm. 113  
346-239-3394

### Sweetwater Campus

Misty Walden  
Disability Services  
Student Support Services  
Lance Sears Building Rm. 140  
325-236-8292

### Breckenridge Campus

Lisa Langford  
Testing and Advisement located in  
The Main Building Rm. 106  
254-559-7731

### Harlingen Campus

Corina De La Rosa  
Disabilities Services  
Student Support Services  
Student Services Bldg. Rm. 216  
956-364-4521

### North Texas Campus

Amanda Warren  
Student Services, Room 227  
972-617-4724

### Brownwood Campus

Nicole Whitley  
Testing and Advisement  
Building 2 Rm. 120  
325-641-5955

### Marshall Campus

Annette Ellis  
Administration and Admissions Rm. 150  
909-923-3313

### Waco Campus

Marilyn Harren  
Disabilities Services Office  
Student Services Center Rm. 198  
254-867-3600

### Williamson County

Chemese Armstrong  
Enrollment Services Rm. B113C  
512-759-5907

## Tutoring Statement

The Supplemental Instruction & Tutoring Program at TSTC offers free tutoring and academic support services to help you achieve your academic and career goals. You can access the Tutoring Schedule, as well as *MyTSTC Video Tutor Library*, by visiting: [https://portal.tstc.edu/student/Student\\_Learning/Pages/Tutoring.aspx](https://portal.tstc.edu/student/Student_Learning/Pages/Tutoring.aspx) (shortened link: [goo.gl/Z9vJvY](https://goo.gl/Z9vJvY)). For more information, please contact Norma A. Salazar@ [956-364-4557](mailto:956-364-4557).

## Learning Resource Center

The purpose of the TSTC Learning Resource Center is to serve the TSTC Community and support academic, advanced, specialized and emerging programs, contributing to the educational and economic development of the State of Texas. You can access the Learning Resource Center page at <https://portal.tstc.edu/employee/Departments/operations/Pages/Learning%20Resource%20Center.aspx>

## Resources

### Tools, Materials:

Item	Resource	Quantity
1	NIOSH approved Safety Glasses (Clear)	1 pair
2	Scantrons	10
3	Pens (Blue or Black)	1 pkg
4	Pencils	1 pkg
5	Tablet or Notebook	1

Grade Scheme		
Category Description		Category Value
Lecture		33.33%
Assessment Label:	Assessment Description	Assessment Value
Quiz 1::	Safety Test	2.22%
(SP2) Safety and Pollution Prevention:	Complete Personal Safety, Environment and Interview Modules in the online SP2 program.	2.22%
1. ICAR Intro Series IPS00e:	Intro to Personal Safety	2.22%
2. ICAR Intro Series HWD01e:	Hazardous material Storage and Disposal	2.22%
3. ICAR Intro Series IRT00e :	Intro to Industry Repair Terms	2.22%
4. ICAR Intro Series IVT01e :	Intro to Vehicle Parts Terminology, Part 1	2.22%
5 ICAR Intro Series IVT02e :	Intro to Vehicle Parts Terminology, Part 2	2.22%
6. ICAR Intro Series ITM01 :	Intro to Tools, Equipment and Attachment Methods Part 1	2.22%
7. ICAR Intro Series ITM02 :	Intro to Tools, Equipment and Attachment Methods Part 2	2.22%
8. ICAR Intro Series ICM00e :	Intro to Vehicle Construction Materials	2.22%
9. ICAR Intro Series IRP00e:	Intro to Collision Repair Process Overview	2.22%
10. ICAR Intro Series IMT01e:	Intro to Mechanical Systems Terminology, Part 1	2.22%
11. ICAR Intro Series IMT02e:	Intro to Mechanical Systems Terminology, Part 2	2.22%
12. ICAR Intro Series IMV00e:	Intro to Mechanical Repair Terms and Vehicle Protection	2.22%
13. ICAR Intro Series ISS00e:	Intro to Safety Systems	2.22%
Category Description		Category Value
Lab		33.33%
Assessment Label:	Assessment Description	Assessment Value
Safety Inspection:	Shop Safety Inspection	1.75%
Lift:	Lift Inspection and Lifting Points Worksheet	1.75%
Label:	Label Worksheet	1.75%
Tool Identification :	Tool Identification	1.75%
Lab Performance #1:	Labels Performance	3.51%
Lab Performance #2:	Shop Safety Inspection Performance	3.51%
Lab Performance #3:	Lift Inspection/ Lifting Points Performance	3.51%
Lab Performance #4:	Measuring	3.51%
Lab Performance #5:	Liquid Measurement	3.51%
Liquid Measurements:	Liquid Measurement Worksheet	1.75%
Measuring:	Measuring Worksheet	1.75%
Vehicle Components:	Identify body and frame components Worksheet	1.75%
Lab Performance #6:	Identify body and frame components	3.51%
Category Description		Category Value
Final		33.34%
Assessment Label:	Assessment Description	Assessment Value
Mid-Term Exam:	Comprehensive exam covering previously assigned chapters.	8.00%
Final Exam:	Comprehensive exam covering entire semester class lessons	25.34%

Total Assessment Percent **100.00%**Total Category Percent **100.00%****A = 100-90****B = 89-80****C = 79-70****D = 69-60****F = 59-0**

<b>Description of Graded Elements of the Course</b>			
<b>Assessment Label</b>	<b>Assessment Description/Course outcomes met</b>	<b>Assessment Value in Percent</b>	<b>% of Final Grade</b>
Quiz 1:	Safety Test <b>Course outcomes met:</b> CO5, CO1, CO2	2.22	2.22%
(SP2) Safety and Pollution Prevention	Complete Personal Safety, Environment and Interview Modules in the online SP2 program. <b>Course outcomes met:</b> CO2, CO1, CO5	2.22	2.22%
1. ICAR Intro Series IPS00e	Intro to Personal Safety <b>Course outcomes met:</b> CO5, CO1, CO2	2.22	2.22%
2. ICAR Intro Series HWD01e	Hazardous material Storage and Disposal <b>Course outcomes met:</b> CO5	2.22	2.22%
3. ICAR Intro Series IRT00e	Intro to Industry Repair Terms <b>Course outcomes met:</b> CO5	2.22	2.22%
4. ICAR Intro Series IVT01e	Intro to Vehicle Parts Terminology, Part 1 <b>Course outcomes met:</b> CO5	2.22	2.22%
5 ICAR Intro Series IVT02e	Intro to Vehicle Parts Terminology, Part 2 <b>Course outcomes met:</b> CO5	2.22	2.22%
6. ICAR Intro Series ITM01	Intro to Tools, Equipment and Attachment Methods Part 1 <b>Course outcomes met:</b> CO2, CO1	2.22	2.22%
7. ICAR Intro Series ITM02	Intro to Tools, Equipment and Attachment Methods Part 2 <b>Course outcomes met:</b> CO2, CO1	2.22	2.22%
Safety Inspection	Shop Safety Inspection <b>Course outcomes met:</b> CO5	1.75	1.75%
Label	Label Worksheet <b>Course outcomes met:</b> CO5	1.75	1.75%
Lift	Lift Inspection and Lifting Points Worksheet <b>Course outcomes met:</b> CO2	1.75	1.75%
Tool Identification	Tool Identification <b>Course outcomes met:</b> CO5, CO1	1.75	1.75%
Lab Performance #1	Labels Performance <b>Course outcomes met:</b> CO5	3.51	3.51%
Lab Performance #2	Shop Safety Inspection Performance <b>Course outcomes met:</b> CO1, CO2, CO5	3.51	3.51%
Measuring	Measuring Worksheet <b>Course outcomes met:</b> CO5, CO1	1.75	1.75%
Lab Performance #3	Lift Inspection/ Lifting Points Performance <b>Course outcomes met:</b> CO2, CO5	3.51	3.51%
Liquid Measurements	Liquid Measurement Worksheet <b>Course outcomes met:</b> CO4, CO3	1.75	1.75%
Lab Performance #4	Measuring <b>Course outcomes met:</b> CO3, CO4	3.51	3.51%
Lab Performance #5	Liquid Measurement <b>Course outcomes met:</b> CO4, CO3	3.51	3.51%
Mid-Term Exam	Comprehensive exam covering previously assigned chapters. <b>Course outcomes met:</b> CO1, CO2, CO3, CO4, CO5	8.00	8.00%
8. ICAR Intro Series ICM00e	Intro to Vehicle Construction Materials <b>Course outcomes met:</b> CO5	2.22	2.22%
9. ICAR Intro Series IRP00e	Intro to Collision Repair Process Overview <b>Course outcomes met:</b> CO5	2.22	2.22%
10. ICAR Intro Series IMT01e	Intro to Mechanical Systems Terminology, Part 1 <b>Course outcomes met:</b> CO5	2.22	2.22%
11. ICAR Intro Series IMT02e	Intro to Mechanical Systems Terminology, Part 2 <b>Course outcomes met:</b> CO5	2.22	2.22%

12. ICAR Intro Series IMV00e	Intro to Mechanical Repair Terms and Vehicle Protection <b>Course outcomes met:</b> CO5	2.22	2.22%
13. ICAR Intro Series ISS00e	Intro to Safety Systems <b>Course outcomes met:</b> CO5	2.22	2.22%
Vehicle Components	Identify body and frame components Worksheet <b>Course outcomes met:</b> CO5	1.75	1.75%
Lab Performance #6	Identify body and frame components <b>Course outcomes met:</b> CO5	3.51	3.51%
Final Exam	Comprehensive exam covering entire semester class lessons <b>Course outcomes met:</b> CO1, CO2, CO3, CO4, CO5	25.34	25.34%
		<b>100.00</b>	<b>100.00%</b>

### Description of Graded Elements of the Course:

Student test assessments will be graded on the ability to choose the correct answer in regard to multiple choice questions, test questions that require a missing word and brief statements.

Performance assessments are designed to enhance the student's level of competency based on the course outcomes and expectations of the industry.

Students cannot advance to the Lab Performance Exams until the required practice labs are completed and ALL Practice Labs and Performance Labs must be complete before Course Comprehensive Final Exam will be administered.

### Safety Procedures

Students are required to participate in a safety lecture prior to performing in the laboratory portion of the course. A written test will be given to each participating student covering the presented safety materials. Students must complete the safety test with 100% accuracy prior to receiving lab assignments.

All lecture and laboratory safety rules and regulations will be followed in every detail. Failure to comply with this policy will result in dismissal from class until further notice.

### Acceptance Attire

- §NIOSH approved with clear safety glasses will be worn at all times
- §Full-toed shoes (no slippers, sandals, flip-flops, or bare feet)
- §Full length pants (must extend past ankles)
- §Pants must fit around waist within 3 inches of belly button
- §Shirts (no sleeveless or tank tops)
- §Shirts with and without buttons can be worn with instructor approval on neck opening exposure
- §Clothing must be reasonably snug fitting (not excessively loose, baggy, torn)
- §An inappropriate slogan on clothing is not acceptable.
- §Jogging clothes, sweats, or warm-ups are not acceptable.
- §Appropriate headgear
- §The Instructor has the final authority concerning matters of dress

### Classroom and Lab Behaviors

- §Smoking in classrooms, laboratories and shops are prohibited
- §Smoking is permitted only in designated areas
- §Smoking is prohibited within 20 feet of a building, when permitted
- §Smoking is prohibited within the fenced area surrounding the ACM Labs.
- §The consumption of drinks, candy and other food items is restricted to lounge areas
- §Eating or drinking in laboratories are hazardous because of the toxic nature of lab materials being handled
- §No horseplay at any time
- §Be responsible – Be a professional

### Daily, Weekly, Assignments and Participation Grades:

A class participation grade will be taken each and every class day. The quiz or assignment will be the participation grade if given. Otherwise, 25 will be given for attending and being on time. A 12.5 will be given if you are tardy. An unexcused absence will earn a grade of "ZERO". The Midterm and Final Exams will include the participation grade for those days. 25% of the exam grade will be deducted if you are tardy. A grade of "ZERO" will be earned if you have an unexcused absence.

### Tardiness:

When a student arrives or leaves after participation record (role) has been taken it becomes the student's responsibility to alert the instructor of his/her arrival or departure and confirm that the proper update has been made in the student participation record. If the

instructor of his/her arrival or departure and confirm that the proper update has been made in the student participation record. If the instructor fails to document the arrival or departure it is the student's fault. This has to be this way especially in the lab environment because the instructor does not keep his participation record on his person at all times.

Leaving the lecture or lab early without proper notice could become a safety issue and needs to be taken very seriously. In an emergency situation each student must be accounted for.

Please, out of respect for first responders, instructors and classmates who may go back into a dangerous situation to get you out, let the instructor know when you leave.

Any earned non-participation time will be recorded, tallied and included in the 10% non-participation policy.

Each Tardy will be 1% addition of non-participation to the non-participation policy.

**Late Work/Test Policies**

All students are required to be present for class. However, unexpected circumstances will occur. If a student has an excused absence, death or illness in the immediate family, the student must notify the instructor of record immediately. If a test is missed, the instructor has to give permission for makeup. The missed test must be made up before the next scheduled period of instruction.

An excused absence only allows for makeup of missed assignments or test. The absence is recorded. Excused absences are determined by the instructor.

Assignments are due at the beginning of class of the set due date. Late assignments will not be accepted and a grade of "zero" will be earned for said assignment. Students who prior contacted the instructor may be considered excused.

**Pop Tests**

Can be given at any time by the instructor and are not make up items.

**Exemptions**

Students can be exempted from a final exam if:

- A. Lecture average is 90 or above
- B. Attendance is perfect
- C. Assignments are completed and turned in

**Cell phone Policy**

Cell phones may be brought into the classroom or lab. However, they must be in the off or vibrate position.

Anyone failing to adhere to this policy will be dismissed from class and issued a non-participation grade (absence) for that period of instruction.

**Departmental Awards Ceremony/Cleanup Policy**

Each student is expected to participate in the awards ceremony and cleanup activities once the date has been identified.

Students' final exam grade is dependent upon their participation at these functions. One half (1/2) of the final exam grade for the course is participation. One half (1/2) of the final exam grade is completing the final exam for the course.

Students with unexpected circumstances can be excused by the department chair only.

TSTC school calendar identifies the end of the semester. Student break begins the day after.

Course Schedule			
Unit/Week	Unit Description/Objectives	Assessment Label:Description	Due Date
1	Week 1: Introduction of Course Syllabus and Requirements		
	<ul style="list-style-type: none"> <li>1. Summarize the contents of the course syllabus as discussed in student orientation.</li> </ul>	Visit <a href="http://www.i-car.com">www.i-car.com</a> Register for a myI-CAR account Return ID number to instructor <b>Quiz 1:: Safety Test</b> <b>(SP2) Safety and Pollution Prevention:</b> Complete Personal Safety, Environment and Interview Modules in the online SP2 program. <b>1. ICAR Intro Series IPS00e:</b> Intro to Personal Safety	End of class Week 8 Week 8

		<p><b>2. ICAR Intro Series HWD01e:</b> Hazardous material Storage and Disposal      Week 8</p> <p><b>3. ICAR Intro Series IRT00e :</b> Intro to Industry Repair Terms      Week 8</p> <p><b>4. ICAR Intro Series IVT01e :</b> Intro to Vehicle Parts Terminology, Part 1      Week 8</p> <p><b>5 ICAR Intro Series IVT02e :</b> Intro to Vehicle Parts Terminology, Part 2      Week 8</p> <p><b>6. ICAR Intro Series ITM01 :</b> Intro to Tools, Equipment and Attachment Methods Part 1      Week 8</p> <p><b>7. ICAR Intro Series ITM02 :</b> Intro to Tools, Equipment and Attachment Methods Part 2      Week 8</p>
2	<p>Week 2: Safety Data Sheet Course Outcome: CO3: Demonstrate shop safety practices</p>	
	<ul style="list-style-type: none"> <li>Describe the different characters and methods of label warnings</li> <li>Recognize the different types of hazardous wastes generated in a collision repair facility; discuss the regulations for handling hazardous waste.</li> <li>Apply the proper procedures for handling and storing all hazardous materials in the collision shop.</li> </ul>	<p><b>Safety Inspection:</b> Shop Safety Inspection      End of Class</p> <p><b>Label:</b> Label Worksheet      End of Class</p>
3	<p>Week 3: Tools and Equipment Course Outcome: CO1: Identify the use of tools and equipment. CO3: Demonstrate shop safety practices.</p>	
	<ul style="list-style-type: none"> <li>Identify and describe the different types of repair equipment found in a collision repair facility.</li> </ul>	<p><b>Lift:</b> Lift Inspection and Lifting Points Worksheet      End of Class</p>
4	<p>Week 4: Tools and Equipment Course Outcome: CO3: Demonstrate shop safety practices</p>	
	<ul style="list-style-type: none"> <li>Identify and describe the different types of tools found in a collision repair facility.</li> </ul>	<p><b>Tool Identification :</b> Tool Identification      In Lab</p> <p><b>Lab Performance #1:</b> Labels Performance      End of class</p> <p><b>Lab Performance #2:</b> Shop Safety Inspection Performance      In Lab</p>
5	<p>Week 5: Specifications and Measurement in Collision Repair Course Outcomes: CO1: Identify the safe use of tools CO2: Identify the safe use of equipment CO3: Demonstrate metric measuring competencies CO4: Demonstrate Society of Automotive Engineers (SAE) measuring competencies CO5: Demonstrate shop safety practices</p>	
	<ul style="list-style-type: none"> <li>Perform structural analysis using various measuring equipment.</li> </ul>	<p><b>Measuring:</b> Measuring Worksheet      In Lab</p> <p><b>Lab Performance #3:</b> Lift Inspection/ Lifting Points Performance      In Lab</p>
6	<p>Week 6: Specifications and Measurement in Collision Repair Course Outcomes: CO1: Identify the safe use of tools CO2: Identify the safe use of equipment CO3: Demonstrate metric measuring competencies CO4: Demonstrate Society of Automotive Engineers (SAE) measuring competencies CO5: Demonstrate shop safety practices</p>	
	<ul style="list-style-type: none"> <li>Explain the types of measurements required for paint mixing and vehicle dimensional measuring.</li> </ul>	<p><b>Liquid Measurements:</b> Liquid Measurement Worksheet      In Class</p> <p><b>Lab Performance #4:</b> Measuring      In Lab</p>
7	<p>Week 7: Review Course Outcomes: CO1: Identify the safe use of tools CO2: Identify the safe use of equipment CO3: Demonstrate metric measuring competencies CO4: Demonstrate Society of Automotive Engineers (SAE) measuring competencies CO5: Demonstrate shop safety practices</p>	
	<ul style="list-style-type: none"> <li>Review information discussed from Week 1 through Week 6</li> </ul>	<p><b>Lab Performance #5:</b> Liquid Measurement      End of Class</p>
8	<p>Week 8: MID-TERM EXAM Course Outcomes: CO2: Demonstrate metric and SAE measuring competencies. CO3: Demonstrate shop safety practices</p>	

	CO3: Demonstrate shop safety practices.		
	<ul style="list-style-type: none"> <li>Recall information previously discussed from Week 1 through Week 7.</li> </ul>	<b>Mid-Term Exam:</b> Comprehensive exam covering previously assigned chapters.	In class
9	<b>Week 9: Vehicle Construction and Terminology</b> Course Outcomes: CO1: Identify the use of tools and equipment. CO3: Demonstrate shop safety practices.		
	<ul style="list-style-type: none"> <li>Identify the differences between space frame, body-over-frame (BOF) and a true unibody vehicle.</li> </ul>	<b>Review:</b> Review Mid-Term Exam <b>8. ICAR Intro Series ICM00e :</b> Intro to Vehicle Construction Materials <b>9. ICAR Intro Series IRP00e:</b> Intro to Collision Repair Process Overview <b>10. ICAR Intro Series IMT01e:</b> Intro to Mechanical Systems Terminology, Part 1 <b>11. ICAR Intro Series IMT02e:</b> Intro to Mechanical Systems Terminology, Part 2 <b>12. ICAR Intro Series IMV00e:</b> Intro to Mechanical Repair Terms and Vehicle Protection <b>13. ICAR Intro Series ISS00e:</b> Intro to Safety Systems <b>Vehicle Components:</b> Identify body and frame components Worksheet	End of class Week 14 Week 14 Week 14 Week 14 Week 14 Week 14 End Of Class
10	<b>Week 10: Collision Energy Management</b> Course Outcome: CO3: Demonstrate shop safety practices.		
	<ul style="list-style-type: none"> <li>Explain how a vehicle absorbs collision energy to protect occupants.</li> </ul>	<b>Lab Performance #6:</b> Identify body and frame components	In Lab
11	<b>Week 11: Shop Layout and Design</b> Course Outcome: CO1: Identify the use of tools and equipment.		
	<ul style="list-style-type: none"> <li>Explain the major work areas of typical collision repair facility.</li> </ul>		
12	<b>Week 12: Vehicle Technology and Trends 2016</b> Course Outcome: CO1: Identify the use of tools and equipment.		
13	<b>Week 13: Vehicle Technology and Trends 2016</b> Course Outcome: CO1: Identify the use of tools and equipment.		
14	<b>Week 14: Overview of Course Materials</b> Course Outcomes: CO1: Identify the use of tools and equipment. CO2: Demonstrate metric and SAE measuring competencies. CO3: Demonstrate shop safety practices.		
15	<b>Week 15: FINAL EXAM</b> Course Outcomes: CO1: Identify the use of tools and equipment. CO2: Demonstrate metric and SAE measuring competencies. CO3: Demonstrate shop safety practices. Administer the final exam Read: No Assignment Final Exam Complete Comprehensive Final Exam In Class		
		<b>Final Exam:</b> Comprehensive exam covering entire semester class lessons	In class