

will be given on brake machining equipment, hydraulic systems and component replacement on traditional and anti-lock brake systems. Prerequisites: ASEP-170 or ASEP 175. Corequisites: ASEP-190. Offered: Spring.

**ASEP-185 GM ABS & Traction Cont System 1 cr.**

This course will cover Anti-Lock Brake System, Anti-Slip Systems and Traction control systems and include theory, diagnosis and repair procedures as outlined in factory service information. Electric power steering motors, sensors and circuitry will be included. Safety will be emphasized. Corequisites: ASEP-180. Offered: Spring.

**ASEP-190 GM Steering & Suspension 4 cr.**

A theory and shop course to introduce the student to steering geometry, front and rear suspension service, wheel alignment, and wheel balancing. Lab work will include instruction on the latest GM vehicles' steering and suspension systems. Corequisites: ASEP-180. Offered: Spring.

**ASEP-195 GM Computer Controlled Suspensions 1 cr.**

This course will cover the theory of operation of the electrical, mechanical, and hydraulic systems of the computer controlled suspension systems on GM vehicles. Proper service procedures and techniques will be presented. Safety will be emphasized. Corequisites: ASEP-190. Offered: Spring.

**ASEP-280 GM Cooperative Work Education 4 cr.**

The student will be employed at an approved General Motors automotive repair facility which will provide relevant learning experiences that are directly related to the student's most recent classroom/laboratory experiences. Daily logs and weekly reports MUST be submitted electronically once per week. The student will be supervised and evaluated jointly by his/her employer and San Juan College personnel. Prerequisites: ASEP-120. Offered: On Demand.

**ASEP-281 GM Cooperative Work Education 4 cr.**

The student will be employed at an approved General Motors automotive repair facility which will provide relevant learning experiences that are directly related to the student's most recent classroom/laboratory experiences. Daily logs and weekly reports MUST be submitted electronically once per week. The student will be supervised and evaluated jointly by his/her employer and San Juan College personnel. Prerequisites: ASEP-140. Offered: On Demand.

**ASEP-282 GM Cooperative Work Education 4 cr.**

The student will be employed at an approved General Motors automotive repair facility which will provide relevant learning experiences that are directly related to the student's most recent classroom/laboratory experiences. Daily logs and weekly reports MUST be submitted electronically once per week. The student will be supervised and evaluated jointly by his/her employer and San Juan College personnel. Prerequisites: ASEP-160. Offered: On Demand.

**ASEP-283 GM Cooperative Work Education 4 cr.**

The student will be employed at an approved General Motors automotive repair facility which will provide relevant learning experiences that are directly related to the student's most recent classroom/laboratory experiences. Daily logs and weekly report MUST be submitted electronically once per week. The student will

be supervised and evaluated jointly by his/her employer and San Juan College personnel. Prerequisites: ASEP-170 or 175. Offered: On Demand.

## ASTRONOMY

**ASTR-110 Intro to Astronomy 4 cr.**

Observation, theories, and methods of modern astronomy. General study for non-science majors. [NM Common Course Number ASTR 1114, Area III; Laboratory Science Core] Prerequisites: PHYS-111, high school chemistry, or high school physics. Offered: Fall & Spring.

**ASTR-113 Constellation Mythology 3 cr.**

A study of the ancient mythological stories and philosophies of world cultures as seen in the patterns of stars in the night sky. A basic grounding in Greco-Roman myths and representations of star patterns will be compared to other world cultures, including, but not limited to, Native American, Chinese, Arabic, South Pacific, and Arctic. Offered: Fall & Spring.

**ASTR-120 Deep Space Astronomy 3 cr.**

Conceptual study of cosmology and relativity, emphasizing the Einsteinian perceptions of gravity, matter, energy, and space-time geometry. Also examines in detail anomalistic subjects such as black holes, wormholes, "white fountains", and obstacles to superluminal ("faster than light") travel. Prerequisites: ASTR-110.

## AUTO BODY

**AUBO-119 Sheet Metal Welding 4 cr.**

This course is designed to introduce the students to MIG welding procedures, set up and terminology used in sheet metal welding. The students will be exposed to all areas of MIG, oxy acetylene, and plasma torch industry safety. This course will provide the students with the basic knowledge and hands on experience to successfully demonstrate proper sheet metal welds in a variety of joints and welding positions. Offered: Fall & Spring.

**AUBO-121 Non-Structural Repair 6 cr.**

This basic auto body course is designed to develop the students understanding of general shop safety using hand tools, pneumatic tools and power tools. This course will also cover: straightening fundamentals, plastic and composite repair, panel replacement, and adjustments. Prerequisites: AUBO-119. Offered: Fall & Spring.

**AUBO-122 Advanced Non-Structural Repair I 5 cr.**

This course will involve the students in all phases of minor non-structural collision damage repairs. This course will encompass sheet metal repair, advanced panel replacement and alignment. Prerequisites: AUBO-121. Offered: Fall & Spring.

**AUBO-123 Advanced Non-Structural Repair II 5 cr.**

This course is a continuation of AUBO 122 with emphasis in all phases of minor non-structural damage repair. The student will be instructed in sheet metal repair and panel alignment as well as the R&I of automotive glass and related components. Prerequisites: AUBO-122. Offered: Fall & Spring.

**AUBO-124 Automotive Industry Collision Repair I 5 cr.**  
This advanced course is a combination of AUBO 120, 121, 122, 123. This course will incorporate all areas of major non-structural collision damage repair. Through practical application the student will learn how to effectively repair all heavy collision damage using current I-CAR repair standards and procedures. Prerequisites: AUBO-123. Offered: Fall & Spring.

**AUBO-126 Automotive Industry Collision Repair II 5 cr.**  
This advanced course is a continuation of AUBO 124 with emphasis on time efficiency. This course will involve the student in all areas of major collision damage repair. The student will be exposed to all applicable I-CAR industry procedures and standards involved in sheet metal and composite panel repair. Prerequisites: AUBO-124. Offered: Fall & Spring.

**AUBO-127 Frame and Structural Repair 5 cr.**  
This course will involve the student in all areas of frame and structural damage repairs. Through theory and practical application, the student will learn how to diagnose and repair various types of damage including: mash, twist, sag and side sway. This course will expose the students to safe work habits while using measuring and straightening equipment. Prerequisites: AUBO-126. Offered: Fall & Spring.

**AUBO-128 Structural Panel Replacement 5 cr.**  
This course is a continuation of AUBO 127 with infancies in structural panel replacement. The student will be exposed to frame and unibody measuring equipment and their proper use in sectioning procedures. Through theory and practical application the student will learn how to ID structural components, properly separate spot welds, position and weld new body panels in place. Prerequisites: AUBO-127. Offered: Fall & Spring.

**AUBO-130 Introduction to Automotive Refinishing 5 cr.**  
This course is designed to incorporate all aspects of surface preparation, paint safety, refinishing materials, and refinishing fundamentals. Students will receive instructions for the application of acrylic enamel and base coat/clear coat refinishing systems. Offered: Fall & Spring.

**AUBO-131 Intermediate Automotive Refinishing 5 cr.**  
This course encompasses all areas of surface preparation, damage repair and refinishing procedures that are necessary for achieving a proper spot repair. Students will also be exposed to safe work habits in the refinishing area and correct automotive detailing procedures. Prerequisites: AUBO-130. Offered: Fall & Spring.

**AUBO-132 Automotive Color Adjustment & Blending 5 cr.**  
This course will help develop the skills needed to match any type of paint. It will expose the student to color theory, color evaluation, color matching, and other color adjustment factors. The student will be instructed in multiple panel paint blending techniques as well. Prerequisites: AUBO-131. Offered: Fall & Spring.

**AUBO-133 Automotive Overall Refinishing 5 cr.**  
This course encompasses all areas of automotive refinishing. This advanced course is a continuation of AUBO 132 with emphasis in achieving industry refinishing times and standards consistent with that of I-CAR. The student will be exposed to surface preparation

and refinishing techniques involved with overall refinishing. The students will also be instructed on paint safety, use of acrylic enamel and base coat/clear coat refinishing system. Prerequisites: AUBO-132. Offered: Fall & Spring.

**AUBO-230 Body Shop Management I 5 cr.**  
This advanced course is designed to simulate an auto body estimator's position. The student will be exposed to a systematic approach to damage analysis as well as cost estimation. Prerequisites: AUBO-133. Offered: Fall & Spring.

**AUBO-231 Body Shop Management II 5 cr.**  
This course is a continuation of AUBO 230. The student will demonstrate considerable technical judgment in assigning technicians to projects and inspecting completed work. The student will also be exposed to basic record keeping and damage report writing skills. Prerequisites: AUBO-230. Offered: Fall & Spring.

## AUTOMOTIVE TECHNOLOGY

**AUTE-111 Steering and Suspension 5 cr.**  
A theory and shop course to introduce the student to steering geometry, front and rear suspension service, wheel alignment, power steering service, and wheel balancing. Safety is emphasized. Corequisites: AUTE-112. Offered: Fall.

**AUTE-112 Brakes 5 cr.**  
A study of the theory and diagnostic procedures of disc and drum brake systems, including anti-lock brakes. Instruction on machining of discs, drums, and rebuilding of brake hydraulic components will be given. Safety is emphasized. Corequisites: AUTE-111. Offered: Fall.

**AUTE-113 Basic Electrical 4 cr.**  
Basic fundamentals of electrical theory, magnetism, current flow, Ohms Law, series, parallel, and series parallel circuit calculations. The use of basic meters and their application to circuit diagnosis will be taught. Safety is emphasized. Offered: Fall & Spring.

**AUTE-114 Electrical Systems 6 cr.**  
Diagnosis of the general electrical system to include battery, starting, charging, lighting, gauges, horn, wiper/washer and accessories using meters and schematics with standard troubleshooting procedures. Prerequisites: AUTE-113. Corequisites: AUTE-117. Offered: Spring.

**AUTE-115 Manual Drive Train & Transaxles 6 cr.**  
The theory and repair of manual transmission, differentials, clutches, transaxles and drive axles will be covered. Diagnosis and troubleshooting will be stressed. Safety is emphasized. Corequisites: AUTE-116. Offered: Spring.

**AUTE-116 Auto Transmission & Transaxles 6 cr.**  
The operating principles of automatic transmissions, diagnosis, electrical and electronic controls, and repair will be covered. Safety is emphasized. Corequisites: AUTE-115. Offered: Spring.

**AUTE-117 Engine Performance 12 cr.**  
This course will cover the use of engine performance test equipment, fuel system operation, fuel injection, ignition systems, starting and charging systems. A systematic method